

RED MOUNTAIN UNDERGROUND GOLD PROJECT

VOLUME 6 | CHAPTER 31

CONCLUSIONS

Table of Contents

31	Conclusions	3
31.1	Introduction	3
31.2	Summary of Aboriginal and Public Consultation	3
31.3	Summary of Residual and Cumulative Effects	4
31.4	Summary of Proposed Mitigation.....	4
31.5	Conclusion.....	5
31.6	References	52

List of Tables

Table 31.5-1: Conclusions – Residual Effects..... 7
Table 31.5-2: Conclusions – Mitigation..... 25

31 CONCLUSIONS

31.1 Introduction

IDM Mining Ltd. (IDM) has prepared an Application/Environmental Impact Statement (EIS) to identify and assess potential environmental and social effects resulting from the Project. The Application/EIS follows recommended guidelines and legislated requirements, pursuant to the provincial *Environmental Assessment Act* (BCEAA; 2002) and the federal *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and is consistent with the requirements of the Application Information Requirements (AIR; EAO 2016) for the Project issued by the British Columbia EAO. VCs/ICs were identified during early scoping phases of the Pre-Application process and in response to feedback from provincial and federal regulators, Working Group members, Aboriginal Groups, and the public.

31.2 Summary of Aboriginal and Public Consultation

IDM believes that consultation with Aboriginal Groups should be conducted in the spirit of mutual respect, integrity, and transparency. Consultation has been undertaken as directed by the Section 11 Order issued by the EAO on February 10, 2016, and the Section 13 Order issued on April 13, 2016, as well the EIS Guidelines issued by the Agency in January 2016.

IDM has been engaging with the Nisga'a Lisims Government (NLG) on the proposed Project since IDM acquired the Red Mountain Property in May 2014. IDM will continue to engage with NLG throughout the Application Review Stage of the environmental assessment, as outlined in the Nisga'a Consultation Plan, including further consultation on the results of the 8(e) and 8(f) assessments and more open houses in the Nisga'a Villages.

IDM has shared draft sections of the Application/EIS with TSKLH and MNBC to solicit their feedback on IDM's assessment of the potential effects of the Project on their Aboriginal interests and IDM's proposed mitigation measures. Their feedback has been considered, incorporated, where appropriate, and summarized in tables outlining IDM's responses.

IDM proactively engages with community members, stakeholders, and the public in the spirit of respect and integrity to build and maintain constructive and mutually beneficial relationships. The Section 11 Order, the EIS Guidelines, and the Public Consultation Plan prepared by IDM in compliance with the Section 11 Order guide IDM's consultation efforts with community members, stakeholders, and the public.

Comments provided by Aboriginal Groups and IDM's responses are captured in Appendix 27-A, Aboriginal Consultation Report #2. Comments provided by the public and stakeholders are captured in Appendix 28-A, Public Consultation Report #2.

31.3 Summary of Residual and Cumulative Effects

The Application/EIS provides a detailed assessment of potential environmental, social, economic, health and heritage effects, and the steps taken to mitigate the identified potential effects. Effects expected to occur despite mitigation efforts are considered residual effects. Once identified, the Application/EIS characterized the residual effects based on magnitude, geographic extent, duration, frequency, reversibility, context, and likelihood. The significance of a potential residual effect was assessment based on a combination of the effects criteria relevant to a given VC, and different combinations of criteria appropriate to a given VC were used to determine significance.

All identified adverse residual effects resulting from the construction, operation, closure and reclamation of the Project are predicted to be Not Significant (Table 31.5-1). The table presents a significance determination if residual effects are identified. This determination is presented for VCs only, and not for ICs, which are listed as NA (not applicable). Potential cumulative effects were evaluated for each VC/IC that had an identified Project-related residual effect. The Project's cumulative effects assessment, and (Table 31.5-1), identified residual cumulative effects. All residual cumulative effects were concluded to be Not Significant.

31.4 Summary of Proposed Mitigation

Results from the review of best management practices, guidance documents, and mitigation measures conducted for similar projects, as well as professional judgment for the Project-specific effects and most suitable management measures, were considered in determining the mitigation measures. The approach to the identification of mitigation measures subscribed to the mitigation hierarchy, as described in the Environmental Mitigation Policy for British Columbia (<http://www.env.gov.bc.ca/emop/>). Technical and economic feasibility constraints dictated the highest level on the hierarchy that could be achieved for each potential effect and the identification of mitigation measures for managing these effects.

IDM has implemented three broad categories of mitigation and management for this Application/EIS include to address potential adverse Project effects:

- Mitigation by Project Design (including optimizing alternatives);
- Best Management Practices (BMPs); and
- Monitoring and Adaptive Management

Using this approach, IDM has identified mitigation measures designed to avoid, minimize or mitigate potential adverse effects of the Project (Table 31.5-1), thereby maximizing the probability that the Project will not have significant adverse residual effects.

As part of the overall Project mitigation planning, IDM has developed a comprehensive suite of management plans:

- Adaptive Management Plan;
- Access Management Plan;
- Air Quality and Dust Management Plan;
- Aquatic Effects Management and Response Plan;
- Community Involvement Plan;
- Cultural and Heritage Resources Protection Plan;
- Emergency Response Plan;
- Erosion and Sediment Control Plan;
- Explosives Management Plan;
- Fuel Management Plan;
- Hazardous Materials Management Plan;
- Health and Social Services Plan;
- Local Procurement Plan;
- Material Handling and Metal Leaching/Acid Rock Drainage (ML/ARD) Plan;
- Noise Abatement Plan;
- Occupational Health and Safety Plan;
- Site Water Management Plan;
- Skills, Training and Employment Plan;
- Social and Economic Management Plan;
- Spill Contingency Plan;
- Tailings Management Plan;
- Terrain and Soil Management Plan;
- Vegetation and Ecosystems Management Plan;
- Waste Management Plan; and
- Wildlife Management Plan.

31.5 Conclusion

This Application/EIS for an Environmental Assessment Certificate (EAC) represents the application made by IDM under the BC EAA and CEAA 2012. After consideration of the content provided in the Application/EIS, IDM requests that the federal Minister of the Environment issue a decision statement under Section 52 of CEAA 2012, and that the Province of BC issue an EA certificate for the Project to proceed. Successful completion of subsequent permitting processes is required prior to IDM constructing, operating, and decommissioning the Project.

IDM is committed to conducting business in an environmentally and socially sustainable manner, consistent with the intention of the BC EA process to promote sustainable development, while minimizing adverse environmental, economic, social, heritage, and health effects.

IDM believes that the Project offers regional, provincial, and federal economic benefits over the short- and long-term. During the Construction and Operation Phases, the Project will:

- Create up to 2,561 person-years of employment (direct, indirect and induced), primarily in British Columbia;
- Contribute approximately \$234 million to GDP in British Columbia; and
- Bring federal, provincial and local government revenues of approximately \$57 million.

IDM is committed to meaningful and respectful engagement with Aboriginal Groups and local communities to better understand and integrate communities' feedback and concerns into its project planning and implementation, where feasible. It is IDM's goal to maximize local benefits from the Project for the Nisga'a Nation and local communities nearest the Project.

For all potential effects, IDM has successfully avoided adverse effects entirely, or reduced them to insignificance through the establishment of responsible design and mitigation measures. IDM is committed to working with Aboriginal Groups, local communities, and regulatory agencies throughout all phases of the Project to ensure unavoidable effects are minimized.

Table 31.5-1: Conclusions – Residual Effects

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
Air Quality	Air Quality IC	Increase in ambient criteria air contaminants	Sources of air emissions associated with project operation include combustion emissions associated with diesel combustion exhaust from mining trucks and other mobile heavy equipment.	C, O, CR	Air Quality and Dust Management Plan	Y	NA	Y (Low Magnitude)
					Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce dust and emissions.			
	Increase in fugitive dust	Fugitive dust from material transfer points and material loading and unloading as well as wind erosion on stockpiles. Fugitive dust and emissions from drilling and blasting. Mechanically generated dust by traffic along roads.	C, O, CR	Air Quality and Dust Management Plan	Y	NA	Y (Low Magnitude)	
				Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce dust and emissions.				
Noise	Noise IC	Increase in noise levels	Sound generated by construction equipment, vehicles, and blasting.	C,O,CR	Noise Abatement Plan.	Y	NA	Y (Local Extent)
					Underground mining will result in significant reductions in noise emitted by the Project for excavating and hauling waste rock.			
					Impulse events, such as blasting, will be limited to certain times of the day. Instantaneous charge per delay will be minimized to suit blast.			
Landforms and Natural Landscapes	Soil Quantity IC	Loss of soil quantity	Activities such as clearing and grubbing, road works, and facility preparation can result in erosion and soil cover loss. Soil handling during reclamation.	C	Soil handling procedures will be developed specific to sensitive ecosystems (alpine and parkland, wetlands, floodplains and BC CDC-listed ecosystems). High-quality soils will be identified and stockpiled when required in accordance with the Terrain and Soil Management Plan.	Y	NA	Y (Low Magnitude)
				C,O,CR	Regular inspections will be conducted to ensure drainage, erosion, and sediment control measures are effective and functioning properly; all necessary repairs and adjustments will be conducted in a timely manner.			
				C	Guidance and control of the stripping and stockpiling operations will be conducted by a qualified soil specialist.			
	Soil Quality IC	Loss of soil quality	Activities can result in effects to soil composition, including changes in moisture and compaction. Creation and dispersion of fugitive dust from stationary and mobile equipment. General soil mixing, compaction, and erosion.	C	Mixing surface and subsurface soils during salvaging operations (admixing) will be avoided, where possible, as excessive mixing can degrade the quality of the topsoil and reduce the potential productivity of the salvaged material.	Y	NA	Y (Low Magnitude)
				C	The use of PAG material for construction will be minimized. For roads, pads and rock cuts, minimize cut and fill in areas with ML/ARD potential.			
				C,O,CR	Appropriate secondary containment systems will be used to prevent spills of hazardous materials (including fuel).			
	Terrain Stability IC	Decreases in terrain stability	Activities such as clearing and grubbing, road works, and site preparation, gravel/borrow development, other ancillary land-based construction and earthworks.	C	Avoid the placement of infrastructure in areas with known terrain stability issues.	Y	NA	None identified
				C,O,CR	Follow mitigation measures and best practices as outlined in the Erosion and Sediment Control Plan.			
				C,O,CR	If a situation arises where the risk of geotechnical failure becomes apparent, undertake proactive preventative measures to address the problem and ensure geotechnical stability is reinstated.			

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
Hydrogeology	Hydrogeology IC	Changes to subsurface characteristics and groundwater flow	Excavating portal entrances and access tunnels; discharging water from underground workings; underground lateral development; installation of bulkheads in the declines and ventilation raises; flooding underground.	O,CR,PC	The mining method being employed is longhole stoping utilizing cemented rock fill as a structural backfill and backfilling of waste rock material. The mining and backfilling will be designed such that interaction with the hydraulic regime is minimized.	Y	NA	Y (Negligible Magnitude)
				CR,PC	Hydraulic plugs will be installed and the underground will be flooded to prevent continued geochemical reactivity of the fractured zone.			
Groundwater Quality	Groundwater Quality IC	Changes to groundwater quality as a result of ML/ARD, blasting and dewatering	Excavating portal entrances and access tunnels; discharging water from underground workings; underground lateral development; installation of bulkheads in the declines and ventilation raises; flooding underground.	C,O	As the mine is being backfilled during operations, some waste rock will be cemented as CRF and the talus will be mixed with lime to reduce metals and acidity loading from the backfill.	Y	NA	None identified
		Changes to groundwater quality as a result of flooding	Excavating portal entrances and access tunnels; discharging water from underground workings; underground lateral development; installation of bulkheads in the declines and ventilation raises; flooding underground.	CR,PC	The CRF and the lime in the backfill will reduce metals and acidity loading from the backfill during the reflooding period. Flooding will prevent ML/ARD in most of the backfill over the long-term, and alkalinity naturally present in the groundwater will help to maintain neutral pH conditions in the mine pool.	Y	NA	Y (Local Extent)
		Changes to groundwater quality caused by infiltration through water management features	Construction, operation, and closure of the TMF.	O,CR,PC	The TMF will be fully lined before operations to limit seepage. During closure, the TMF will be covered with a geomembrane liner and soil cover to limit infiltration and the ingress of oxygen.	N	NA	NA
Hydrology	Hydrology VC	Changes to surface characteristics and surface water flow	Construct Mine Site water management infrastructure including talus quarry and portal collection ponds, dewatering systems, and water diversion, collection and discharge ditches and swales. Discharge of water from underground workings at the Mine Site.	All	Clean, non-contact catchment water will be diverted away from the TMF and other Project infrastructure to maintain water quality and natural drainage networks as much as possible. TMF is fully lined and will be covered with a liner/soil cover at closure to reduce infiltration through the tailings thus restoring flows to the environment	N	NA	NA
		Changes to stream flows from water withdrawal	Establish water management facilities including diversion ditches for the TMF and Process Plant. Excess process water for the mill will be obtained through water withdrawal from contact water management ponds, treated effluent water, and/or Bitter Creek.	O	The Process Plant has been designed to use reclaim water from the TMF, thereby reducing the amount of water required from local natural surface waters. Water withdrawal will follow provincial regulatory requirements and standard best practices to avoid adverse impacts to stream flows, fish and fish habitat.			
		Changes to stream flows from discharge	Treat and discharge, as necessary, excess water from the TMF.	C,O	Discharge from the TMF will, to the extent possible, match the receiving environment hydrograph. Bulkhead on the mine will limit discharges post-closure. The increased hydraulic conductivity of the backfilled mine will result in increased groundwater flows reporting to surface water.	Y	Not Significant	Not Significant

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
Surface Water Quality	Surface Water Quality VC	Changes to surface water quality from mine discharge	Underground lateral development and cave gallery excavation, including dewatering, and discharge of water from underground; Flood underground; fuel tanks at Mine Site; water management infrastructure including talus quarry and Portal Collection Pond, dewatering systems, and water diversion, collection and discharge ditches and swales; and ore stockpile at the Mine Site.	All	The mining method being employed is longhole stoping utilizing cemented rock fill as a structural backfill and backfilling of waste rock material. The mining and backfilling will be designed such that interaction with the hydraulic regime is minimized. Surface disturbance by mining will be limited to the Upper Portal, Lower Portal, and vent portal.	Y	Not Significant	Not Significant
					Contact water will be intercepted and routed to on-site settling sumps, or holding ponds, and will be analyzed and treated as required to meet MMER limits prior to discharge to the receiving environment.			
					Excess water from the underground workings to be discharged to the receiving environment will be monitored. Treatment will be undertaken if necessary to ensure water quality meets permitted requirements.			
		Changes to surface water quality from TMF discharge	Treating and discharging water from the TMF; maintenance of mine drainage, seepage, and discharge; rock and till excavation from the TMF basin and local borrows / quarries for construction activities (e.g. dam construction for the TMF); Process Plant and Run of Mine Stockpile.	All	Infrastructure will be located, whenever feasible, on competent bedrock or appropriate base material that will limit permeability and transport of potentially poor quality water into freshwater. Clean, non-contact catchment water will be diverted away from the TMF and other project infrastructure to maintain water quality and natural drainage networks as much as possible. Contact water will be intercepted and routed to on-site settling sumps, holding ponds, or the TMF and will be analyzed and treated as required to meet MMER limits prior to discharge to the receiving environment. Sources of contact water include mine wastes, tailings, and surface water/storm water flow from the individual Project areas.	Y	Not Significant	Not Significant
Changes to surface water quality from road runoff	Constructing Access Road and Haul Road from Hwy 37a to the Upper Portal; and installation and filling fuel tanks at Mine Site.	C,O,CR	Regular inspections will be conducted to ensure drainage, erosion, and sediment control measures are effective and functioning properly; all necessary repairs and adjustments will be conducted in a timely manner.	N	NA	NA		
			Sediment loading in runoff will be minimized by the application of measures to intercept total suspended solids before it reaches the freshwater environment.					
			Refuelling and maintenance activities will not occur within 15 m of a watercourse except where required due to equipment breakdown or approved activities near water.					
Changes to surface water quality from non-contact water runoff	Erosion and sedimentation from land clearing activities including water management infrastructure. Disturbance, transport and relocation of surficial materials during closure. Installation of culverts and bridges resulting in suspended sediments transported as runoff.	C,O,CR	Regular inspections will be conducted to ensure drainage, erosion, and sediment control measures are effective and functioning properly; all necessary repairs and adjustments will be conducted in a timely manner.	N	NA	NA		
			Sediment loading in runoff will be minimized by the application of measures to intercept total suspended solids before it reaches the freshwater environment.					
			The area of landscape disturbance will be minimized and ecosystem-based revegetation and progressive reclamation will occur promptly to minimize erosion potential, introduction of invasive plants, and to facilitate initiation of successional ecological processes.					

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
		Changes to surface water quality from aerial deposition	Activities such as blasting, construction of facilities and infrastructure, road construction, transportation of ore and waste rock, on-site equipment and vehicle use and traffic along the access roads.	C,O,CR	Mitigation measures for Air Quality IC.	N	NA	NA
Sediment Quality	Sediment Quality VC	Changes to sediment quality from non-contact water runoff	Erosion and sedimentation from land clearing activities including water management infrastructure. Disturbance, transport and relocation of surficial materials during closure. Installation of culverts and bridges resulting in suspended sediments transported as runoff.	C,O,CR	Mitigation measures for Surface Water Quality VC.	N	NA	NA
		Changes to sediment quality from dustfall	Activities such as blasting, construction of facilities and infrastructure, road construction, transportation of ore and waste rock, on-site equipment and vehicle use and traffic along the access roads.	C,O,CR	Mitigation measures for Air Quality IC.	N	NA	NA
		Changes to sediment quality from changes to surface water quality	Dewatering, and discharge of water from underground; flooding underground; water management infrastructure including talus quarry and Portal Collection Pond, dewatering systems, and water diversion, collection and discharge ditches and swales; and ore stockpile at the Mine Site. Treating and discharging water from the TMF; maintenance of mine drainage, seepage, and discharge; rock and till excavation from the TMF basin and local borrows / quarries for construction activities.	All	Mitigation measures for Surface Water Quality VC.	Y	Not Significant	Not Significant
Vegetation and Ecosystems	Ecologically Valuable Soil VC	Loss of ecologically valuable soil	Activities such as clearing and grubbing, road works, and facility preparation can result in erosion and ecologically valuable soil loss. Soil handling during reclamation.	C	The clearing of soils will be minimized to the extent possible, and avoided, where practicable, for unique features Soil handling procedures will be developed specific to sensitive ecosystems. High quality soils will be identified and stockpiled when required in accordance with the Terrain and Soil Management Plan.	Y	Not Significant	Not Significant
		Alteration of ecologically valuable soil	Activities can result in effects to soil composition, including changes in moisture and compaction. Creation and dispersion of fugitive dust from stationary and mobile equipment. General soil mixing, compaction, and erosion.	C,O,CR	Conduct regular inspections to ensure drainage, erosion, and sediment control measures are effective and functioning properly; all necessary repairs and adjustments will be conducted in a timely manner. The design of the Access Road and Haul Road has been optimized to minimize the distance travelled, which will reduce dust generation.	Y	Not Significant	Not Significant
	Alpine and Parkland Ecosystems VC	Loss or alteration of ecosystem function, abundance and/or distribution	Surface disturbance including clearing vegetation and removing topsoil, stockpiling overburden and topsoil, and through traffic associated with the transport of people, goods, and materials. Infrastructure and activities include:	C,O,CR	The clearing of vegetation will be minimized to the extent possible, and avoided, where practicable, for unique features Revegetation will be undertaken with seeds (and/or plants) suitable for the local ecosystem and during the appropriate growing season and conditions to: 1) ensure maximum survival rate; 2) avoid establishment of invasive species; and 3) facilitate the establishment of ecological functions and their associated attributes	Y	Not Significant	Not Significant

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
			<ul style="list-style-type: none"> Re-activation and use of the Access Road from Highway 37A to Bromley Humps; Construction of the TMF and the Process Plant at Bromley Humps; Construction and use of the Haul Road from the Process Plant at Bromley Humps to the underground mine; Construction and extraction of materials from the Borrow and Topsoil Storage Area; Clearing associated with the creation of the right of way for the 138-kV Powerline from Highway 37A to the underground mine; Clearing and installation of the Powerline towers along the full length of the line; and Ongoing vegetation maintenance under the Powerline; Waste rock, ore, and soil stockpiling; Decommissioning of the Process Plant, TMF, ancillary buildings, and facilities; Land reclamation and removal of water treatment facilities; and Soil handling and revegetation of proposed reclaimed areas. 		(e.g. species diversity and productivity). The Vegetation and Ecosystems Management Plan will be implemented Minimize deposition of fugitive dust in alpine ecosystems through adherence to the Air Quality and Dust Management Plan			
	Old Growth and Mature Forested Ecosystems VC	Loss or alteration of ecosystem function, abundance and/or distribution		C,O,CR	The clearing of vegetation will be minimized to the extent possible, and avoided, where practicable, for unique features Manage forests according to the <i>Forest and Range Practices Act</i> (FRPA) silviculture requirements and BMPs. Revegetation will be undertaken with seeds (and/or plants) suitable for the local ecosystem and during the appropriate growing season and conditions to: 1) ensure maximum survival rate; 2) avoid establishment of invasive species; and 3) facilitate the establishment of ecological functions and their associated attributes (e.g. species diversity and productivity). The Vegetation and Ecosystems Management Plan will be implemented	Y	Not Significant	Not Significant
	Floodplains and Wetlands VC	Loss or alteration of ecosystem function, abundance and/or distribution		C,O,CR	The clearing of vegetation will be minimized to the extent possible, and avoided, where practicable, for unique features Revegetation will be undertaken with seeds (and/or plants) suitable for the local ecosystem and during the appropriate growing season and conditions to: 1) ensure maximum survival rate; 2) avoid establishment of invasive species; and 3) facilitate the establishment of ecological functions and their associated attributes (e.g. species diversity and productivity). Appropriate setback and buffer distances from surface waterbodies and riparian features will be implemented and maintained. The Vegetation and Ecosystems Management Plan will be implemented	Y (but only the BC CDC-Listed floodplain ecosystems)	NA	NA
	BC CDC-Listed Ecosystems VC	Loss or alteration of ecosystem function, abundance and/or distribution		C,O,CR	The clearing of vegetation will be minimized to the extent possible, and avoided, where practicable, for unique features Revegetation will be undertaken with seeds (and/or plants) suitable for the local ecosystem and during the appropriate growing season and conditions to: 1) ensure maximum survival rate; 2) avoid establishment of invasive species; and 3) facilitate the establishment of ecological functions and their associated attributes (e.g. species diversity and productivity). The Vegetation and Ecosystems Management Plan will be implemented Riparian areas will be managed per the legislated reserve and/or management zone setbacks and work practices established under FRPA, where feasible.	Y	Not Significant	Not Significant
	Rare Plants: Lichens, and Associated Habitat VC	Loss of known occurrences of rare plants or lichens and/or habitat through surface clearing.		All	Apply adaptive Project design changes that avoid harm to rare plant and lichen populations, where practicable. Conduct pre-construction rare plant surveys to delineate the rare plant/lichen habitat. Avoid surface disturbance in areas with known rare plant and lichen populations.	Y	Not Significant	Not Significant

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
		Alteration of known occurrences of rare plants or lichens or habitat through edge effects, dust deposition and introduction and spread of invasive plants			Avoid use of all herbicide sprays within 200 m of rare plant and lichen populations and limit such use to direct application rather than broadcast sprays. Apply dust suppression measures (i.e., wetting work areas, roads, and storage piles, installing equipment covers, and using dust hoods and shields). Apply water to roads to minimize dust from ore and waste rock haulage and grading.	Y	Not Significant	Not Significant
Wildlife and Wildlife Habitat	Mountain Goat VC	Changes to habitat availability (via loss, alteration and sensory disturbance)	Offsite and on-site Project components such as the Access Road, Powerline, Process Plant, TMF, Mine Site, and ancillary infrastructure that were considered for habitat loss. Sensory disturbance includes the potential for Project-related noise, light, dust, or human presence to elicit behavioural changes in wildlife. This includes activities associated with vegetation clearing and ground disturbance, blasting, and construction of the Access Road, Powerline, and other Project components at Bromley Humps and the Mine Site. Project activities that will contribute to sensory disturbance during the Operation Phase include road use and maintenance, Powerline maintenance, mineral processing, and waste rock and ore transport or storage. Project activities that will contribute to sensory disturbance during the Closure and Reclamation Phase include the removal of surface structures and concrete foundations, backfilling, and the deactivation of road and Powerline rights of way.	All	The clearing of vegetation will be minimized to the extent possible Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP. Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency	Y	Not Significant	Not Significant
					Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency Project roads and road embankments will be constructed in a manner to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement. Project roads may provide favorable travel corridors for wildlife during winter. As such, snow banks along Project roads will be managed and maintained to less than one meter in height where possible and will include periodic breaks to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement.			
		Changes to habitat distribution and disruption of movement	Disruption to movement can occur when infrastructure blocks wildlife movement through restricted terrain features (e.g., a narrow valley or canyon) or restricts wildlife movement within or between watercourses. Increased traffic levels on roads adds a sensory barrier or filter to a physical barrier. Project components that may contribute to disruption to movement from the Construction Phase through to the Closure and Reclamation Phase include the Access Road, Powerline, and TMF.	All	Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency Project roads and road embankments will be constructed in a manner to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement. Project roads may provide favorable travel corridors for wildlife during winter. As such, snow banks along Project roads will be managed and maintained to less than one meter in height where possible and will include periodic breaks to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement.	Y	Not Significant	Not Significant

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
		Mortality Risk	<p>Project activities and infrastructure on wildlife mortality caused by vegetation clearing and ground disturbance during construction, collisions with Project-related traffic on the Mine Site and Access Road, or collisions and electrocution caused by the Powerline. Direct mortality also includes potential effects of entrapment in Project facilities, such as holding ponds or along the Access Road corridor during winter due to high snowbanks.</p> <p>Indirect mortality includes the potential indirect effects of Project activities and infrastructure on wildlife mortality caused by increased hunting pressure due to improved access and new travel corridors that may facilitate predator access.</p>	All	<p>Project traffic will be minimized to the greatest extent practicable</p> <p>Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife</p> <p>Implementation of Wildlife Education Program and Wildlife Protection Protocol</p> <p>All Project roads will be closed to the public, including private vehicles (snowmobile, all-terrain vehicles, etc.) and all foot traffic, with the possible exception of individuals with existing rights to access the Bitter Creek valley. Project road use will be restricted only to Persons required for Project construction, operation, and maintenance.</p>	Y	Not Significant	Not Significant
		Chemical hazards	Exposure to chemical hazards may occur via uptake from the surrounding environment (e.g., water, dust, soil, or sediment) or via the ingestion of contaminated tissue (e.g., vegetation or animal prey). Exposure may also occur via direct contact with chemical hazards on-site.	All	<p>Implementation of Wildlife Education Program and Wildlife Protection Protocol</p> <p>Mitigation measures for water and sediment quality</p>	N	NA	NA
		Attractants	Project-related features or materials that may interest or provide resources for Wildlife VCs, which could lead to behavioural changes and potential human-wildlife conflicts. Project features or materials that are attractants include: infrastructure where odours or food sources associated with petroleum products; food waste and associated domestic garbage; grey water and sewage; Project infrastructure for refuge or shelter; and vegetation growing along roadways or the Powerline.	All	<p>Implementation of Wildlife Education Program and Wildlife Protection Protocol</p> <p>Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.</p>	N	NA	NA
	Grizzly Bear VC	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	All	<p>The clearing of vegetation will be minimized to the extent possible</p> <p>Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP.</p> <p>Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency</p>	Y	Not Significant	Not Significant

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
		Changes to habitat distribution and disruption of movement	Please refer to the above text given for the Mountain Goat VC.	All	Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency	N	NA	NA
					Project roads and road embankments will be constructed in a manner to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement.			
					Project roads may provide favorable travel corridors for wildlife during winter. As such, snow banks along Project roads will be managed and maintained to less than one meter in height where possible and will include periodic breaks to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement.			
		Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	Project traffic will be minimized to the greatest extent practicable	Y	Not Significant	Not Significant
					Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife			
					Implementation of Wildlife Education Program and Wildlife Protection Protocol			
		Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol	N	NA	NA
					Mitigation measures for water and sediment quality			
		Attractants	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol	N	NA	NA
					Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.			
Moose VC	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	All	The clearing of vegetation will be minimized to the extent possible	Y	Not Significant	Not Significant	
				Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP.				
	Changes to habitat distribution and disruption of movement	Please refer to the above text given for the Mountain Goat VC.	All	Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency	N	NA	NA	
				Project roads and road embankments will be constructed in a manner to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement.				
				Project roads may provide favorable travel corridors for wildlife				

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
					during winter. As such, snow banks along Project roads will be managed and maintained to less than one meter in height where possible and will include periodic breaks to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement.			
		Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	Project traffic will be minimized to the greatest extent practicable Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife Implementation of Wildlife Education Program and Wildlife Protection Protocol All Project roads will be closed to the public, including private vehicles (snowmobile, all-terrain vehicles, etc.) and all foot traffic, with the possible exception of individuals with existing rights to access the Bitter Creek valley. Project road use will be restricted only to Persons required for Project construction, operation, and maintenance.	Y	Not Significant	Not Significant
		Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Mitigation measures for water and sediment quality	N	NA	NA
		Attractants	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.	N	NA	NA
	Furbearers VC	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	All	The clearing of vegetation will be minimized to the extent possible Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP. Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency	Y (wolverine and marten)	Not Significant	Not Significant
		Changes to habitat distribution and disruption of movement	Please refer to the above text given for the Mountain Goat VC.	All	Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency Project roads and road embankments will be constructed in a manner to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement. Project roads may provide favorable travel corridors for wildlife during winter. As such, snow banks along Project roads will be managed and maintained to less than one meter in height where possible and will include periodic breaks to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement.	Y (marten only)	Not Significant	Not Significant

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect	
		Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	Project traffic will be minimized to the greatest extent practicable Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife Implementation of Wildlife Education Program and Wildlife Protection Protocol All Project roads will be closed to the public, including private vehicles (snowmobile, all-terrain vehicles, etc.) and all foot traffic, with the possible exception of individuals with existing rights to access the Bitter Creek valley. Project road use will be restricted only to Persons required for Project construction, operation, and maintenance.	Y (marten only)	Not Significant	Not Significant	
		Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Mitigation measures for water and sediment quality	N	NA	NA	
		Attractants	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.	N	NA	NA	
		Hoary Marmot VC	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	C	The clearing of vegetation will be minimized to the extent possible Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP.	Y	Not Significant	Not Significant
			Changes to habitat distribution and disruption of movement	Please refer to the above text given for the Mountain Goat VC.	All	Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency Project roads and road embankments will be constructed in a manner to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement. Project roads may provide favorable travel corridors for wildlife during winter. As such, snow banks along Project roads will be managed and maintained to less than one meter in height where possible and will include periodic breaks to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement.	N	NA	NA
			Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	Project traffic will be minimized to the greatest extent practicable Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife Implementation of Wildlife Education Program and Wildlife Protection Protocol All Project roads will be closed to the public, including private vehicles (snowmobile, all-terrain vehicles, etc.) and all foot traffic,	Y	Not Significant	Not Significant

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
					with the possible exception of individuals with existing rights to access the Bitter Creek valley. Project road use will be restricted only to Persons required for Project construction, operation, and maintenance.			
		Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Mitigation measures for water and sediment quality	N	NA	NA
		Attractants	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.	N	NA	NA
	Bats VC	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	C	The clearing of vegetation will be minimized to the extent possible Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP. Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency	Y	Not Significant	Not Significant
		Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	Project traffic will be minimized to the greatest extent practicable Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife Implementation of Wildlife Education Program and Wildlife Protection Protocol	N	NA	NA
		Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Mitigation measures for water and sediment quality	N	NA	NA
		Attractants	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.	N	NA	NA
	Migratory Breeding Birds VC (including MacGillivray's warbler)	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	All	The clearing of vegetation will be minimized to the extent possible Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP. Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency	Y	Not Significant	Not Significant
		Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	Project traffic will be minimized to the greatest extent practicable Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the	N	NA	NA

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
					<p>potential to encounter wildlife</p> <p>Implementation of Wildlife Education Program and Wildlife Protection Protocol</p> <p>All Project roads will be closed to the public, including private vehicles (snowmobile, all-terrain vehicles, etc.) and all foot traffic, with the possible exception of individuals with existing rights to access the Bitter Creek valley. Project road use will be restricted only to Persons required for Project construction, operation, and maintenance.</p>			
		Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	<p>Implementation of Wildlife Education Program and Wildlife Protection Protocol</p> <p>Mitigation measures for water and sediment quality</p>	N	NA	NA
		Attractants	Please refer to the above text given for the Mountain Goat VC.	All	<p>Implementation of Wildlife Education Program and Wildlife Protection Protocol</p> <p>Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.</p>	N	NA	NA
	Migratory Birds Species at Risk VC (including black swift, common nighthawk, marbled murrelet, and olive-sided flycatcher)	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	All	<p>The clearing of vegetation will be minimized to the extent possible</p> <p>Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP.</p> <p>Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency</p>	Y	Not Significant	Not Significant
		Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	<p>Project traffic will be minimized to the greatest extent practicable</p> <p>Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife</p> <p>Implementation of Wildlife Education Program and Wildlife Protection Protocol</p> <p>All Project roads will be closed to the public, including private vehicles (snowmobile, all-terrain vehicles, etc.) and all foot traffic, with the possible exception of individuals with existing rights to access the Bitter Creek valley. Project road use will be restricted only to Persons required for Project construction, operation, and maintenance.</p>	Y (common nighthawk and marbled murrelet only)	Not Significant	Not Significant
		Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	<p>Implementation of Wildlife Education Program and Wildlife Protection Protocol</p> <p>Mitigation measures for water and sediment quality</p>	N	NA	NA
		Attractants	Please refer to the above text given for the Mountain Goat VC.	All	<p>Implementation of Wildlife Education Program and Wildlife Protection Protocol</p> <p>Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.</p>	N	NA	NA

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
	Raptors VC (including northern goshawk and western creech-owl)	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	All	The clearing of vegetation will be minimized to the extent possible	Y	Not Significant	Not Significant
					Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP.			
					Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency			
	Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	Project traffic will be minimized to the greatest extent practicable	N	NA	NA	
				Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife				
				Implementation of Wildlife Education Program and Wildlife Protection Protocol				
Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol	N	NA	NA		
			Mitigation measures for water and sediment quality					
Attractants	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol	N	NA	NA		
			Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.					
Non-migratory Game Birds VC (including sooty grouse and white-tailed ptarmigan)	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	All	The clearing of vegetation will be minimized to the extent possible	Y	Not Significant	Not Significant	
				Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP.				
				Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency				
	Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	Project traffic will be minimized to the greatest extent practicable	Y	Not Significant	Not Significant	
Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife								
Implementation of Wildlife Education Program and Wildlife Protection Protocol								
			All Project roads will be closed to the public, including private vehicles (snowmobile, all-terrain vehicles, etc.) and all foot traffic, with the possible exception of individuals with existing rights to access the Bitter Creek valley. Project road use will be restricted					

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
					only to Persons required for Project construction, operation, and maintenance.			
		Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Mitigation measures for water and sediment quality	N	NA	NA
		Attractants	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.	N	NA	NA
	Amphibians VC (Western Toad)	Changes to habitat availability (via loss, alteration and sensory disturbance)	Please refer to the above text given for the Mountain Goat VC.	All	The clearing of vegetation will be minimized to the extent possible Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a QEP. Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency	N	NA	NA
		Changes to habitat distribution and disruption of movement	Please refer to the above text given for the Mountain Goat VC.	All	Road design and ore/waste transport plans have been optimized to minimize the distance travelled, which will reduce noise, dust and emissions, and the traffic frequency Project roads and road embankments will be constructed in a manner to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement. Project roads may provide favorable travel corridors for wildlife during winter. As such, snow banks along Project roads will be managed and maintained to less than one meter in height where possible and will include periodic breaks to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement.	N	NA	NA
		Mortality Risk	Please refer to the above text given for the Mountain Goat VC.	All	Project traffic will be minimized to the greatest extent practicable Measures will be implemented to minimize potential Project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife Implementation of Wildlife Education Program and Wildlife Protection Protocol All Project roads will be closed to the public, including private vehicles (snowmobile, all-terrain vehicles, etc.) and all foot traffic, with the possible exception of individuals with existing rights to access the Bitter Creek valley. Project road use will be restricted only to Persons required for Project construction, operation, and maintenance.	N	NA	NA
		Chemical hazards	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Mitigation measures for water and sediment quality	N	NA	NA

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
		Attractants	Please refer to the above text given for the Mountain Goat VC.	All	Implementation of Wildlife Education Program and Wildlife Protection Protocol Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from using Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.	N	NA	NA
Aquatic Resources	Periphyton and Benthic Invertebrates	Direct mortality/habitat loss	Aquatic habitat loss from construction of the Project footprint; under and upstream of the TMF, at watercourse crossings along proposed roads, and in Bitter Creek where the road alignment is located within the annual highwater mark.	C	Infrastructure (including the Access Road) shall be designed in a manner that minimizes the footprint of disturbance and the number of new stream crossing required.	Y	Not Significant	Not Significant
		Reduced abundance and diversity from changes in water quality	Works in or near water, discharge, runoff (e.g., from ford crossings), aerial deposition, mine discharge; TMF discharge; Road runoff; Non-contact water runoff; and Aerial deposition.	C,O,CR	All implemented mitigation measures for Hydrology (Chapter 12, Section 12.6.3) and Surface Water Quality (Chapter 13, Section 13.6) will serve as mitigation for Aquatic Resources relative to this effect.	Y	Not Significant	Not Significant
		Reduced abundance and diversity from changes in sediment quality		All	All implemented mitigation measures for Sediment Quality will serve as mitigation for Aquatic Resources relative to this effect (Chapter 14, Section 14.6). Culvert maintenance will be conducted following Department of Fisheries and Oceans best practice as outlined as measures for working near water, including maintain original stream flow directions.	Y	Not Significant	Not Significant
		Reduced abundance and diversity from changes in stream flow	Activities include the dewatering of the underground mine and discharge to Goldslide Creek, construction of surface water management facilities, and the use of water for mine-related activities such as dust suppression, and providing freshwater for the Process Plant.	O,CR	All implemented mitigation measures for Hydrology will serve as mitigation for Aquatic Resources relative to this effect (Chapter 12, Section 12.6).	Y	Not Significant	Not Significant
		Reduced abundance and diversity from blasting	Production of blasting residues, as well as vibration and shockwaves from detonation of explosive.	C,O	All implemented mitigation measures for Surface Water Quality will serve as mitigation for Aquatic Resources relative to this effect (Chapter 13, Section 13.6). Capture surface runoff and diverting it to the Portal Collection Pond in the Mine Site or the TMF in Bromley Humps for treatment prior to discharge. Blasting activities will be limited to the Mine Site during operations, so there is no potential for effects on benthic invertebrates from explosive shockwaves as the blasting zone will not be near any fish-bearing watercourses.	N	NA	NA
Fish and Fish Habitat	Fish VC (as represented by dolly vardon, bull trout, eulachon and <i>Oncorhynchus</i> salmonids)	Increased fishing pressure	Unauthorized access to Bitter Creek valley.	C,O,CR	No fishing policy for Project employees and guests Existing DFO regulations All Project roads will be closed to the public, including private vehicles (snowmobile, all-terrain vehicles, etc.) and all foot traffic, with the possible exception of individuals with existing rights to access the Bitter Creek valley. Project road use will be restricted only to Persons required for Project construction, operation, and maintenance.	N	NA	NA

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
		Changes in aquatic resources	As described above for Aquatic Resources VC.	C,O,CR	All implemented mitigation measures for Aquatic Resources will serve as mitigation for Fish and Fish Habitat relative to this effect (Chapter 17, Section 17.6).	N	NA	NA
		Changes in surface water quality	As described above for Surface Water Quality VC.	C,O,CR	All implemented mitigation measures for Surface Water Quality will serve as mitigation for Fish and Fish Habitat relative to this effect (Chapter 13, Section 13.6).	Y	Not Significant	Not Significant
		Changes in sediment quality	As described above for Sediment Quality VC.	All	All implemented mitigation measures for Sediment Quality will serve as mitigation for Fish and Fish Habitat relative to this effect (Chapter 14, Section 14.6).	N	NA	NA
		Changes in stream flow	As described above for Hydrology IC.	O,CR	All implemented mitigation measures for Hydrology will serve as mitigation for Fish and Fish Habitat relative to this effect (Chapter 12, Section 12.6.3). Water withdrawal will follow provincial regulatory requirements and standard best practices to avoid adverse impacts to streamflows, fish and fish habitat.	Y	Not Significant	Not Significant
		Effects of blasting	Production of blasting residues, as well as vibration and shockwaves from detonation of explosive.	C,O	All implemented mitigation measures for Surface Water Quality will serve as mitigation for Fish and Fish Habitat relative to this effect (Chapter 13, Section 13.6). Capture surface runoff and diverting it to the Portal Collection Pond in the Mine Site or the TMF in Bromley Humps for treatment prior to discharge. Blasting activities will be limited to the Mine Site during operations, so there is no potential for effects on fish or benthic invertebrates from explosive shockwaves as the blasting zone will not be near any fish-bearing watercourses.	N	NA	NA
	Fish Habitat VC	Habitat loss	Infilling of portions of Bitter Creek below the high-water mark to repair historic washouts.	C	Infrastructure (including the Access Road) shall be designed to minimize or avoid habitat loss to Fish and Fish Habitat, wherever feasible. Road crossings have been designed to avoid unnecessary impact on fish-bearing streams.	Y	Not Significant	Not Significant
Economic	Contemporary Land and Resources Use VC	Increased access to Bitter Creek valley		C,O,CR	Access Management Plan No hunting policy for Project employees and guests	N	NA	NA
		Environmental effects on land and resource use and users		C,O,CR	Wildlife Management Plan	N	NA	NA
		Effects on visual quality		C,O,CR	Project designed with smallest practical footprint	N	NA	NA
		Project interferes with commercial recreation tenure		C,O	Managed through coordination, cooperation, and consultation between IDM and Last Frontier Heli-skiing.	N	NA	NA
	Commercial, Recreational and Aboriginal (CRA) Fisheries VC	Increased fishing pressure	Project workforce and public access to Bitter Creek valley.	C,O,CR	No fishing policy for Project employees and guests Project terms of employment establish high standards to respect community and environment	N	NA	NA
		Environmental effects to fish and fish habitat	As described above for Fish and Fish Habitat VCs.	C,O	All implemented mitigation measures for Fish and Fish Habitat will serve as mitigation for Economic VC relative to this effect (see Chapter 18, Section 18.6).	N	NA	NA

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
					All implemented mitigation measures for Aquatic Resources will serve as mitigation for Economic VC relative to this effect (see Chapter 17, Section 17.6).			
	Project-related Employment IC	Effect on local and regional labour markets	Change in demand for labour, goods, and services in the regional economy. Employment of workforce.	C,O	Avoid excessive compensation packages, employment incentives, and wages.	N	NA	NA
		Loss of employment at closure		CR	Social and Economic Management Plan Skills, Training and Employment Plan	N	NA	NA
	Revenue to the Local Economy IC	No potential adverse effects identified	NA	NA	NA	NA	NA	NA
Social	Social and Health Services VC	Pressure on health and medical services	Workforce (including employment of staff and contractors).	C,O,CR	Social and Economic Management Plan Health and Social Services Plan	N	NA	NA
		Pressure on emergency and protection services		C,O	Social and Economic Management Plan Health and Social Services Plan Community Involvement Plan	N	NA	NA
		Increased demand for social services		O,CR	Social and Economic Management Plan Health and Social Services Plan	N	NA	NA
	Potential Social Issues Related to Project and Project Workforce VC	Increased prevalence of mental health concerns and addictions	Workforce (including employment of staff and contractors).	C,O,CR	Social and Economic Management Plan Health and Social Services Plan Community Involvement Plan Local Procurement Plan Skills, Training and Employment Plan	N	NA	NA
				C,O,CR	Social and Economic Management Plan Health and Social Services Plan Community Involvement Plan Local Procurement Plan Skills, Training and Employment Plan	N	NA	NA
		Reduced family health		C,O,CR	Social and Economic Management Plan Health and Social Services Plan Community Involvement Plan Local Procurement Plan Skills, Training and Employment Plan	N	NA	NA
	Housing VC	Reduced availability of housing	Workforce (including employment of staff and contractors).	O	Social and Economic Management Plan Local Procurement Plan	N	NA	NA
		Reduced affordability of housing		O	Social and Economic Management Plan Avoid housing allowances that may lead to increases in housing costs	N	NA	NA
	Infrastructure VC	increased pressure on existing solid waste landfills	Workforce (including employment of staff and contractors).	C,O,CR	Social and Economic Management Plan Health and Social Services Plan	N	NA	NA
		Increased pressure on existing water supply	Workforce (including employment of staff and contractors).	C,O,CR	Social and Economic Management Plan Health and Social Services Plan Community Involvement Plan Local Procurement Plan Skills, Training and Employment Plan	N	NA	NA

Subject Area	Valued or Intermediate Component	Potential Adverse Effects	Contributing Project Activity or Physical Works	Project Phase	Primary Mitigation Measures	Adverse Residual Effect	Significance	Cumulative Effect
	Recreational Values VC	Changes in viewsapes	Construction, operation, and decommissioning of construction camp, Mine Site, roads, powerline, and processing facilities and other infrastructure.	C,O,CR	Vegetation and Ecosystems Management Plan	N	NA	NA
		Increased access to recreational activities		C,O,CR	Social and Economic Management Plan Community Involvement Plan Access Management Plan	N	NA	NA
		Changes to or increases in demand for recreation activities		C,O,CR	Social and Economic Management Plan Health and Social Services Plan Community Involvement Plan	N	NA	NA
	Project-related Traffic IC	No adverse effects identified	Workforce (including employment of staff and contractors).	NA	NA	NA	NA	NA
	Visual Quality IC	No adverse effects identified not already covered under Recreational Values VC	Construction, operation, and decommissioning of construction camp, Mine Site, roads, powerline, and processing facilities and other infrastructure.	NA	NA	NA	NA	NA
Heritage	Cultural and Heritage Resource VC	Potential disturbance of unidentified archaeological, paleontological, cultural, and heritage resources	Construction, operation, and decommissioning of construction camp, Mine Site, roads, powerline, and processing facilities and other infrastructure.	C,O,CR	Chance Find Procedure in Cultural and Heritage Resources Protection Plan	N	NA	NA
		Potential change to access		C,O,CR	Access Management Plan Chance Find Procedure in Cultural and Heritage Resources Protection Plan	N	NA	NA
Health	Human Health VC	Changes in air quality as a result of changes in metal concentrations in particulate emissions (potentially affecting soil quality and land-based country foods).	Construction and operation of Project facilities per exposure pathways and Conceptual Site Models provided in Chapter 22, Section 22.5.3.	C,O,CR	All implemented mitigation measures for Air Quality will serve as mitigation for Human Health relative to this effect (Chapter 7, Section 7.6).	N	NA	NA
		Changes in releases to surface water (potentially affecting surface water quality for drinking water and both land- and aquatic-based country foods).		All	All implemented mitigation measures for Surface Water Quality will serve as mitigation for Human Health relative to this effect (Chapter 13, Section 13.6).	N	NA	NA

Notes for Table

No significance determination for residual or cumulative effects for ICs. For IC cumulative effect, the key effect criteria is listed.

C = Construction, O = Operations, CR = Closure and Reclamation, PC = Post-Closure

Table 31.5-2: Conclusions – Mitigation

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
ENVIRONMENTAL							
1.0 Air Quality	Increase in fugitive dust	Air Quality and Dust Management Plan	1.1	Underground mining will result in significant reductions in Project disturbance areas and emissions, such as from fuel burned during excavating and hauling waste rock, and blasting underground.	Operation	<i>Environmental Management Act</i>	MOE
			1.2	The Air Quality and Dust Management Plan will be adhered to and will include: Use of dust suppression measures (i.e., wetting work areas, roads, and storage piles, installing equipment covers, and using dust hoods and shields); Water or other dust suppressant to be used on roads if needed to minimize dust from ore and waste rock haulage and grading, as needed and when ambient air temperatures permit; Use of dust suppression methods (i.e. wetting work areas and storage piles, installing equipment covers, and using dust hoods and shields), including water or other dust suppressant on roads to minimize dust from ore and waste rock haulage and grading, as needed and when ambient air temperatures permit; Installing windbreaks or fences where practicable around known problem areas or stockpiles to limit the dispersion of dust emissions from equipment and stockpiles, or activities likely to generate dust; and Design and managing stockpiles and storage areas to minimize emission of dust.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act</i>	MOE
		Air Quality and Dust Management Plan; Noise Abatement Plan; Erosion and Sedimentation Control Plan	1.3	The road design has been optimized to minimize the distance travelled, which will reduce noise, dust, and emissions associated with construction and operation.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act</i>	MOE
		Access Management Plan	1.4	Vehicles will be driven at designated speeds on Project roads, to limit run-off.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act</i>	MOE
			1.5	Roads will be regularly maintained and kept in good repair.			
		Tailings Management Plan	1.6	Tailings disposal methods have been designed to reduce beach/dust sources and generation. The operational supernatant pond volume in the Tailings Management Facility will be managed to ensure that the beaches are saturated, which will reduce the potential for dust generation.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act</i>	MOE
	Increase in ambient criteria air contaminants	Air Quality and Dust Management Plan	1.7	Use of vapour recovery units at fuel and chemical storage tanks will be implemented.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act</i>	MOE
			1.8	Where practicable, select equipment with low emissions that meet latest applicable Canada emissions standards and guidelines.			
			1.9	Equipment will be properly maintained. Equipment logbooks shall be maintained for each vehicle and inspections, maintenance and service records will be recorded as per the Health, Safety and Reclamation Code for Mines in BC.			
			1.10	Equipment will be turned off when not in use, where practical, to avoid unnecessary idling of motors (e.g. institute a no-idling policy for Project vehicles).			
			1.11	All mobile and stationary engines will have regular servicing to maintain efficiency.			

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
1.0 Air Quality (continued)	Increase in ambient criteria air contaminants (continued)	Air Quality and Dust Management Plan (continued)	1.12	The ventilation systems for the underground mine will be designed to dilute and remove dust, diesel emissions, and blasting fumes, and will maintain compliance with BC mine regulations.	Construction, Operation, Closure and Reclamation	Environmental Management Act	MOE
	Increase in ambient criteria air contaminants Increase in fugitive dust	Air Quality and Dust Management Plan	1.13	The number of trips for ore and waste rock transport will be minimized along the Haul Road.	Construction, Operation	Environmental Management Act	MOE
			1.14	Necessary training and instruction will be provided to all on-site staff with duties related to the operation of equipment that emit air pollutants, generate dust, or controls air emissions (e.g., the required measures to be implemented during start-up, shut down, and emergency conditions): The site operator will maintain a statement of training requirements for each operational post and keep a record of the training received by each person whose actions may have an effect on the environment; and These documents will be made available to the regulator on request.	Construction, Operation, Closure and Reclamation	Environmental Management Act	MOE
			1.15	The need for any corrective actions to on-site emission management or installation of additional control measures in relation to air quality or dust will be determined on a case-by-case basis. Indications of the need for corrective actions and additional control measures may include: If monitoring data shows exceedances of applicable standards; If monitoring data shows an increasing trend in contaminant concentrations; and If issues are raised by on-site staff, regulators or local communities.			
2.0 Noise	Increase in noise levels	Air Quality and Dust Management Plan	2.1	Underground mining will result in significant reductions in Project disturbance areas and emissions, such as from fuel burned during excavating and hauling waste rock, and blasting underground.	Operation	None	NA
			2.2	Equipment will be properly maintained. Equipment logbooks shall be maintained for each vehicle and inspections, maintenance and service records will be recorded as per the Health, Safety and Reclamation Code for Mines in BC.	Construction, Operation, Closure and Reclamation	None	NA
			2.3	Equipment will be turned off when not in use, where practical, to avoid unnecessary idling of motors (e.g. institute a no-idling policy for Project vehicles).			
			2.4	All mobile and stationary engines will have regular servicing to maintain efficiency.			
			2.5	Equipment will be fitted with appropriate mufflers and silencers that meet manufacturers' recommendations for optimal attenuation.			
		Air Quality and Dust Management Plan; Noise Abatement Plan; Erosion and Sedimentation Control Plan	2.6	The road design has been optimized to minimize the distance travelled, which will reduce noise, dust, and emissions associated with construction and operation.	Construction, Operation, Closure and Reclamation	None	NA
		Noise Abatement Plan	2.7	There will be an approved Noise Abatement Plan that will be carried out during all phases of the Project. The Plan will include mitigation measures to reduce or eliminate the potential effects of noise on sensitive wildlife receptors. In addition, the program will involve monitoring noise levels.	Construction, Operation, Closure and Reclamation	None	NA

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
2.0 Noise (continued)	Increase in noise levels (continued)	Noise Abatement Plan (continued)	2.8	A noise monitoring program will be incorporated into the Noise Abatement Plan and will be undertaken to assess the magnitude of noise impacts from Project activities.	Construction, Operation, Closure and Reclamation	None	NA
			2.9	During operation, impulse events, such as blasting, will be limited to certain times of the day. Instantaneous charge per delay will be minimized to suit blast.	Operation	None	NA
3.0 Landforms and Natural Landscapes	Erosion, loss of vegetation	Vegetation and Ecosystems Management Plan Erosion and Sediment Control Plan	3.1	The area of landscape disturbance will be minimized and ecosystem-based revegetation and progressive reclamation will occur where practical to minimize erosion potential, introduction of invasive plants, and to facilitate initiation of successional ecological processes.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
	Loss of soil quality	Material Handling & ML/ARD Management Plan	3.2	The use of PAG material for construction will be minimized. For roads, pads and rock cuts, the following will be conducted to the extent possible: Minimize cut and fill in areas with ML/ARD potential. Free passage of water through fill materials (i.e. clear span bridges, ditches or culverts) and not through rock drains. For pads, drainage will be collected using water diversions.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
			3.3	Facilities will be designed to prevent and contain chemical / fuel / oil spillage.			
		3.4	Appropriate secondary containment systems will be used for petroleum product storage to prevent spills and releases to water. This includes secondary containment will be required for tanks carrying diesel fuel.				
		3.5	Refueling will occur at a refueling point with drainage capture/collection installed. In the event that refueling occurs elsewhere, drip trays will be used under vehicles and equipment.				
		3.6	A spill response procedure will be developed as part of the spill contingency plan including both internal (IDM) and external (regulatory agencies) reporting requirements.				
		Terrain and Soil Management Plan	3.7	Where possible, soil will be: Stripped and stockpiled for future reclamation; and Preserved by minimizing the number of times soil is moved; reducing the vehicle traffic over the soil surface; and avoiding handling soils when they are too dry or too wet.			
			3.8	Where possible, organic soils will be salvaged and stored separately from mineral soils.			
		Vegetation and Ecosystems Management Plan	3.9	Revegetation will be undertaken with seeds (and/or plants) suitable for the local area and ecosystems, and during the appropriate growing season and conditions to: 1) ensure maximum survival rate; 2) avoid establishment of invasive species; and 3) facilitate the establishment of ecological functions and their associated attributes (e.g. species diversity and productivity).			

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
3.0 Landforms and Natural Landscapes (continued)	Loss of soil quantity	Terrain and Soil Management Plan	3.10	Soil handling procedures will be developed and high quality soils will be identified and stockpiled when required.	Construction, Closure and Reclamation	Mines Act	MEM
			3.11	Guidance and control of the stripping and stockpiling operations will be conducted by a Qualified Environmental Professional.	Construction, Operation	Mines Act	MEM
		Erosion and Sediment Control Plan	3.12	Regular inspections will be conducted to ensure drainage, erosion, and sediment control measures are effective and functioning properly; all necessary repairs and adjustments will be conducted in a timely manner.	Construction, Operation, Closure and Reclamation, Post-Closure	Mines Act	MEM
			3.13	Sediment loading in runoff will be minimized by the application of measures to intercept total suspended solids before it reaches the freshwater environment. Sediment control measures may include: preservation of riparian zones to trap sediment and to reduce flow velocities; installation of synthetic permeable barriers, fibre rolls, and/or silt fences as required; installation of check dams, gabions, and sediment basins to reduce flow velocities and encourage sediment deposition; and locating stockpiles well away from watercourses.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
		Air Quality and Dust Management Plan; Noise Abatement Plan; Erosion and Sedimentation Control Plan	3.14	The road design has been optimized to minimize the distance travelled, which will reduce noise, dust, and emissions associated with construction and operation.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
		Vegetation and Ecosystems Management Plan; Wildlife Management Plan	3.15	The clearing of vegetation and soil will be minimized to the extent possible, and avoided where practicable for unique features identified by Qualified Environmental Professionals, including wetlands, exposed bedrock, cliffs etc., which often provide high value habitat to wildlife and may support sensitive vegetation communities and growth forms.	Construction	Mines Act	MEM
		Terrain and Soil Management Plan; Vegetation and Ecosystems Management Plan	3.16	Stockpile berms will be revegetated in a timely manner to control surface erosion, where required.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
			3.17	All vehicles and machinery travel will be restricted to designated road surfaces.			
			3.18	Removal of alpine and parkland, old and mature forest, wetland, floodplain, and BC CDC listed ecosystems will be minimized through Project design and avoided if possible.	Construction	Mines Act	MEM
		Aquatic Effects Management and Response Plan; Erosion and Sediment Control Plan	3.19	Appropriate setback and buffer distances from surface watercourses and riparian features will be implemented and maintained.	Construction, Closure and Reclamation	Mines Act	MEM
Wildlife Management Plan	3.20	Construction activities will minimize risk to old and mature forest wildlife habitat, such as adhering to sensitive periods, specific guidelines, and applicable legislation for wildlife species of concern that use old and mature forest.	Construction	Mines Act	MEM		

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
3.0 Landforms and Natural Landscapes (continued)	Decreases in terrain stability	Erosion and Sediment Control Plan; Site Water Management Plan	3.21	The length and steepness of disturbed slopes will be limited to minimize runoff energy.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
		Material Handling & ML/ARD Management Plan	3.22	Excavations will follow the requirements outlined in the Health, Safety and Reclamation Code for Mines in BC, specifically for locating utilities, cut slope angles, shoring (if required), access procedures, barriers and stockpile setbacks.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
		Terrain and Soil Management Plan	3.23	Reclamation methods will be employed that reduce equipment traffic during soil redistribution and placement.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
	Decreases in terrain stability Loss of soil quantity	Vegetation and Ecosystems Management Plan; Wildlife Management Plan	3.24	The design of the Access Road optimizes the utilization of the existing forestry road to avoid and minimize new disturbance.	Construction	Mines Act	MEM
		Erosion and Sediment Control Plan	3.25	Temporary water management structures, which may include ditches, ponds and sumps, will be developed to manage surface water during construction, prior to the development of permanent water management structures.	Construction	Mines Act	MEM
4.0 Groundwater Quality	Degradation of groundwater quality	Material Handling & ML/ARD Management Plan	4.1	The use of PAG material for construction will be minimized. For roads, pads and rock cuts, the following will be conducted to the extent possible: Minimize cut and fill in areas with ML/ARD potential. Free passage of water through fill materials (i.e. clear span bridges, ditches or culverts) and not through rock drains. For pads, drainage will be collected using water diversions.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
			4.2	Excavations will follow the requirements outlined in the Health, Safety and Reclamation Code for Mines in BC, specifically for locating utilities, cut slope angles, shoring (if required), access procedures, barriers and stockpile setbacks.		Mines Act	MEM
		Hazardous Materials Management Plan	4.3	As part of ore processing, cyanide destruction will occur in order to keep potentially harmful levels of cyanide from being discharged to the receiving environment.	Construction, Operation	Environmental Management Act, Fisheries Act (MMER)	MOE, EC
			4.4	Hazardous materials (e.g., used batteries, petroleum product containers, grey water and sewage, contaminated soil or snow) will be handled, stored, transported, and disposed in accordance with the Transportation of Dangerous Goods Act and associated regulatory requirements to ensure the safety of workers and the environment.	Construction, Operation, Closure and Reclamation	Environmental Management Act (Hazardous Materials Regulation), Transport of Dangerous Goods Act	MOE, TC

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
4.0 Groundwater Quality (continued)	Degradation of groundwater quality (continued)	Hazardous Materials Management Plan; Tailings Management Plan	4.5	Cyanide will be used in a manner consistent with the International Cyanide Management Code (International Cyanide Management Institute). Cyanide will only be used to recover gold and the Process Plant will incorporate cyanide detoxification prior to release to the Tailings Management Facility. Cyanide-containing effluent will be analyzed and treated as required prior to discharge to the receiving environment to ensure cyanide concentrations are below maximum authorized limits.	Construction, Operation, Closure and Reclamation	Metal Mining Effluent Regulations <i>Fisheries Act</i>	MOE, EC
			Tailings Management Plan; Site Water Management Plan	4.6	Excess water from the underground workings and the Tailings Management Facility to be discharged to the receiving environment will be monitored. Treatment will be undertaken if necessary to ensure water quality meets regulatory requirements.	Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>
		4.7		Contact water will be intercepted and routed to on-site settling sumps, holding ponds, or the Tailings Management Facility and will be analyzed and treated as required to meet regulatory requirements prior to discharge to the receiving environment. Sources of contact water include mining areas, mine wastes, tailings, and surface water/stormwater flow from the individual Project areas.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Site Water Management Plan	4.8	Infrastructure will be located, whenever feasible, on competent bedrock or appropriate base material that will limit permeability and transport of potentially poor quality water into freshwater.	Construction	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Explosives Management Plan	4.9	Explosives will be stored on-site in an approved Explosive Magazine during operations.	Construction, Operation, Closure and Reclamation	<i>Mines Act</i>	MEM
		Fuel Management Plan; Spill Contingency Plan	4.10	Fuel will be stored on-site in a double walled tank. Appropriate containment measures will be implemented to avoid spills.	Construction, Operation, Closure and Reclamation	<i>Mines Act</i>	MEM
		Spill Contingency Plan	4.11	All mobile equipment will be inspected as required (minimum once per shift) by the operator for potential leaks.	Construction, Operation, Closure and Reclamation	<i>Mines Act</i>	MEM
			4.12	Any machinery identified as having the potential to result in a fluid release or leak will be repaired prior to use.		<i>Mines Act</i>	MEM
			4.13	Refueling will occur at a refueling point with drainage capture/collection installed, in the event that refueling occurs elsewhere, drip trays will be used under vehicles and equipment.		<i>Mines Act</i>	MEM
			4.14	The fuel tanks, hazardous materials storage area, and the explosives magazine(s) will be designed and constructed to minimize leaks and spills reaching freshwater environment.		<i>Mines Act</i>	MEM
		Site Water Management Plan	4.15	Hydraulic plugs will be installed and the underground will be flooded on closure to prevent continued geochemical reactivity of the fractured zone and backfilled material.	Closure and Reclamation, Post-Closure	<i>Mines Act</i>	MEM
			4.16	Oily water treatment separators at equipment maintenance facilities will be used to minimize water and surface hydrocarbon contaminants.	Construction, Operation, Closure and Reclamation	<i>Mines Act</i>	MEM

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
5.0 Hydrology	Changes to groundwater quality as a result of ML/ARD, blasting and dewatering Degradation of groundwater quality	Site Water Management Plan	4.17	The primary approach is mitigation by design these include: Mining method being employed is longhole stoping (primary) and cut/fill (secondary) utilizing cemented rock fill as a structural backfill and backfilling of waste rock material. Mining surface disturbance will be limited to the portals and temporary waste rock stockpiles on surface.	Operation	<i>Mines Act</i>	MEM
	Changes to groundwater quality as a result of flooding	Material Handling & ML/ARD Management Plan	4.18	ML/ARD will be managed by submerging tailings in the Tailings Management Facility, and by flooding the underground workings at closure	Construction, Operation	<i>Mines Act</i>	MEM
	Changes to stream flows from water withdrawal	Site Water Management Plan	5.1	The Process Plant has been designed to use reclaim water from the Tailings Management Facility, thereby reducing the amount of water required from local natural surface waters.	Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			5.2	Water will be recycled / reused where possible.	Construction, Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Aquatic Effects Management and Response Plan	5.3	Water withdrawal will remain within limits specified in applicable authorizations and permits to avoid adverse impacts to streamflows, fish and fish habitat.	Construction, Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC, MFLNRO
	Changes to stream flows from discharge	Tailings Management Plan; Site Water Management Plan	5.4	Excess water from the underground workings and the Tailings Management Facility to be discharged to the receiving environment will be monitored. Treatment will be undertaken if necessary to ensure water quality meets permitted requirements.	Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			5.5	Discharge from the TMF to Bitter Creek will be staged to the extent possible to match the receiving environment hydrograph.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
	Changes to surface characteristics and surface water flow	Aquatic Effects Management and Response Plan	5.6	Culverts will be appropriately sized to individual stream crossings and maintained to ensure unimpeded passage.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC, MFLNRO
		Site Water Management Plan; Tailings Management Plan	5.7	Clean, non-contact catchment water will be diverted away from the Tailings Management Facility and other project infrastructure to maintain water quality and natural drainage networks as much as possible.	Construction, Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
6.0 Water and Sediment Quality	Changes to surface water quality from non-contact water runoff Changes to sediment quality from non-contact water runoff	Vegetation and Ecosystems Management Plan	6.1	The area of landscape disturbance will be minimized and ecosystem-based revegetation and progressive reclamation will occur where practical to minimize erosion potential, introduction of invasive plants, and to facilitate initiation of successional ecological processes.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Erosion and Sediment Control Plan	6.2	Regular inspections will be conducted to ensure drainage, erosion, and sediment control measures are effective and functioning properly; all necessary repairs and adjustments will be conducted in a timely manner.	Construction, Operation, Closure and Reclamation, Post-Closure	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			6.3	Sediment loading in runoff will be minimized by the application of measures to intercept total suspended solids before it reaches the freshwater environment. Sediment control measures may include: Setbacks to preserve riparian zones; installation of synthetic permeable barriers, fibre rolls, and/or silt fences as required; installation of check dams, gabions, and sediment basins to reduce flow velocities and encourage sediment deposition; and locating stockpiles above the high water mark of watercourses.	Construction, Operation, Closure and Reclamation		
	Changes to surface water quality from mine discharge	Tailings Management Plan; Site Water Management Plan	6.4	Excess water from the underground workings and the Tailings Management Facility to be discharged to the receiving environment will be monitored. Treatment will be undertaken if necessary to ensure water quality meets permitted requirements.	Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
	Changes to surface water quality from mine discharge (<i>continued</i>)	Tailings Management Plan; Site Water Management Plan (<i>continued</i>)	6.5	Contact water will be intercepted and routed to on-site settling sumps, holding ponds, or the Tailings Management Facility and will be analyzed and treated as required to meet regulatory requirements prior to discharge to the receiving environment. Sources of contact water include mining areas, mine wastes, tailings, and surface water/storm water flow from the individual Project areas.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Site Water Management Plan	6.6	The primary approach is mitigation by design these include: Mining method being employed is longhole stoping (primary) and cut/fill (secondary) utilizing cemented rock fill as a structural backfill and backfilling of waste rock material. Waste rock will be temporarily stockpiled on the surface. Mining surface disturbance will be limited to the portals.	Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			6.7	Hydraulic plugs will be installed and the underground will be flooded to prevent continued geochemical reactivity of the fractured zone and backfilled material.	Closure and Reclamation, Post-Closure		
	Changes in surface water quality from road runoff	Material Handling & ML/ARD Management Plan	6.8	The use of PAG material for construction will be minimized. For roads, pads and rock cuts, the following will be conducted to the extent possible: Minimize cut and fill in areas with ML/ARD potential. Free passage of water through fill materials (i.e. clear span bridges, ditches or culverts) and not through rock drains. For pads, drainage will be collected using water diversions.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Vegetation and Ecosystems Management Plan	6.9	Efforts will be made during the final design stage to have the right-of-way cross each stream as close to perpendicular as possible to minimize the amount of riparian vegetation that may need to be disturbed during construction.	Construction	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
6.0 Water and Sediment Quality (continued)	Changes in surface water quality from road runoff (continued)	Vegetation and Ecosystems Management Plan; Wildlife Management Plan	6.10	Project activities will be restricted to the defined Project footprint. Construction and Operation-phase activities, including vehicle use, will be restricted to areas that are surveyed, approved, marked, and flagged. Due care will be taken by all personnel to avoid excessive and unnecessary disturbance to existing riparian and aquatic areas, vegetation, and wildlife habitat within the Project footprint.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Aquatic Effects Management and Response Plan	6.11	Measures will be implemented to prevent or avoid the destruction of fish, or any potentially harmful effects to fish habitat, when using explosives in or around fish-bearing waters.	Construction, Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			6.12	The duration of any instream works will be minimize to reduce disturbance of riparian vegetation at stream crossings.	Construction, Operation, Closure and Reclamation		
			6.13	All temporary works, silt curtains, construction material or debris, etc. will be completely removed from the waterway when work is completed.			
		Aquatic Effects Management and Response Plan; Erosion and Sediment Control Plan	6.14	Where practicable, machinery fording a watercourse to bring equipment required for construction to the opposite side will be limited to a one-time event (over and back) and shall occur only if an existing crossing at a nearby location is not available or practical to use.	Construction	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			6.15	Vehicular access across a watercourse will be by road or bridge, or other acceptable method.			
		Spill Contingency Plan	6.16	All mobile equipment will be inspected as required (minimum once per shift) by the operator for potential leaks.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			6.17	Any machinery identified as having the potential to result in a fluid release or leak will be repaired prior to use.			
			6.18	Appropriate secondary containment systems will be used for petroleum product storage to prevent spills and releases to water. This includes secondary containment required for tanks carrying diesel fuel.			
			6.19	Refueling will occur at a refueling point with drainage capture/collection installed, in the event that refueling occurs elsewhere, drip trays will be used under vehicles and equipment.			
			6.20	The fuel tanks, hazardous materials storage area, and the explosives magazine(s) will be designed and constructed to minimize leaks and spills reaching freshwater environment.			
			6.21	A spill response procedure will be developed as part of the spill contingency plan including both internal (IDM) and external (regulatory agencies) reporting requirements.			
			6.22	Refueling and maintenance activities will not occur within 15 m of a watercourse or waterbody except where required due to equipment breakdown or approved activities near water.			
Wildlife Management Plan	6.23	Alternative measures will be used for deicing Project roads (e.g., gravel) or dust suppression (e.g., water) whenever possible, as salt is known to attract foraging wildlife. The use of salt in traction grit for winter road management will be avoided where practicable.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC		

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency	
6.0 Water and Sediment Quality (continued)	Changes to surface water quality from TMF discharge	Site Water Management Plan	6.24	Infrastructure will be located, whenever feasible, on competent bedrock or appropriate base material that will limit permeability and transport of potentially poor quality water into freshwater.	Construction	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
			6.25	Discharge from the TMF to Bitter Creek will be staged to the extent possible to match the receiving environment hydrograph.	Construction, Operation, Closure and Reclamation			
			6.26	Inspections of water management facilities will be scheduled and conducted to ensure they are functioning properly and as intended.	Construction, Operation			
		Site Water Management Plan; Tailings Management Plan	6.27	Clean, non-contact catchment water will be diverted away from the Tailings Management Facility and other project infrastructure to maintain water quality and natural drainage networks as much as possible.	Construction, Operation			
		Hazardous Materials Management Plan	6.28	As part of ore processing, cyanide destruction will occur in order to keep potentially harmful levels of cyanide from being discharged to the receiving environment.	Construction, Operation			
		Hazardous Materials Management Plan; Tailings Management Plan	6.29	Cyanide will be used in a manner consistent with the International Cyanide Management Code (International Cyanide Management Institute). Cyanide will only be used to recover gold and the Process Plant will incorporate cyanide detoxification prior to release to the Tailings Management Facility. Cyanide-containing effluent will be analyzed and treated as required prior to discharge to the receiving environment to ensure cyanide concentrations are below the maximum authorized limits.	Construction, Operation, Closure and Reclamation			
		Tailings Management Plan	6.30	The Tailings Management Facility has been designed with an impermeable liner to limit seepage to the receiving environment.	Construction			<i>Environmental Management Act, Fisheries Act (MMER)</i>
	6.31		Tailings disposal methods have been designed to reduce beach/dust sources and generation. The operational supernatant pond volume in the Tailings Management Facility will be managed to ensure that the beaches are saturated, which will reduce the potential for dust generation.	Construction, Operation, Closure and Reclamation				
	Changes in surface water quality	Material Handling & ML.ARD Management Plan	6.32	ML/ARD will be managed by submerging tailings in the Tailings Management Facility, and by flooding the underground workings at closure.	Construction, Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
			Erosion and Sediment Control Plan; Site Water Management Plan	6.33	Excavations will follow the requirements outlined in the Health, Safety and Reclamation Code for Mines in BC, specifically for locating utilities, cut slope angles, shoring (if required), access procedures, barriers and stockpile setbacks.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
				6.34	Erosion potential will be reduced by conducting sensitive work during periods of low runoff as much as possible.	Construction, Operation, Closure and Reclamation		
	Erosion and Sediment Control Plan	6.35	The length and steepness of disturbed slopes will be limited to minimize runoff energy.	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC			
			6.36			Temporary water management structures, which may include ditches, ponds and sumps, will be developed to manage surface water during construction, prior to the development of permanent water management structures.	Construction	<i>Environmental Management Act, Fisheries Act</i>

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
6.0 Water and Sediment Quality (continued)	Changes in surface water quality (continued)		6.37	Exposed landscape surfaces will be protected, where practicable, by the installation of covering material like riprap, aggregate, or rolled erosion control products.	Construction, Operation, Closure and Reclamation, Post-Closure		
			6.38	Erosion potential will be reduced by conducting sensitive work during periods of low runoff to the extent possible.			
	Changes in water quality due to aerial deposition	Air Quality and Dust Management Plan	6.39	The Air Quality and Dust Management Plan will be adhered to and will include: Use of dust suppression measures (i.e., wetting work areas, roads, and storage piles, installing equipment covers, and using dust hoods and shields); Water or other dust suppressant to be used on roads if needed to minimize dust from ore and waste rock haulage and grading, as needed and when ambient air temperatures permit; Use of dust suppression methods (i.e. wetting work areas and storage piles, installing equipment covers, and using dust hoods and shields), including water or other dust suppressant on roads to minimize dust from ore and waste rock haulage and grading, as needed and when ambient air temperatures permit; Installing windbreaks or fences where practicable around known problem areas or stockpiles to limit the dispersion of dust emissions from equipment and stockpiles, or activities likely to generate dust; and Design and managing stockpiles and storage areas to minimize emission of dust.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
All potential effects associated with Surface Water Quality and Sediment Quality	Aquatic Effects Management and Response Plan	6.40	An Aquatic Effects Management and Response Plan (AEMRP) will be in place that outlines the aquatic effects management and response to be carried out during all phases of the Project. The AEMRP will include the following: monitoring streams at locations potentially affected by the Project and at reference areas well away from Project activities; monitoring surface water quality, sediment quality, and aquatic biology; monitoring fish populations and fish tissues; and if effluent (as defined in regulatory requirements) is discharged to the environment, then additional sampling for regulatory requirements will be conducted (effluent characterization; acute toxicity testing; site characterization studies (including surface hydrology); sublethal toxicity testing).	Construction, Operation, Closure and Reclamation, Post-Closure	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
7.0 Vegetation and Ecosystems	Loss and alteration of soil quality and quantity through soil stripping, handling, stockpiling, and dust effects	Air Quality and Dust Management Plan; Noise Abatement Plan; Erosion and Sedimentation Control Plan	7.1	The road design has been optimized to minimize the distance travelled, which will reduce noise, dust, and emissions associated with construction and operation.	Construction, Operation, Closure and Reclamation	<i>Mines Act</i>	MEM
	Loss of ecosystem function, abundance and/or distribution through surface clearing	Vegetation and Ecosystems Management Plan;	7.2	Closure plans for reclaimed areas will be developed to establish site conditions that allow for realistic and operationally feasible ecological goals that take into consideration ecosystem function and wildlife habitat objectives.	Construction, Operation, Closure and Reclamation	<i>Mines Act</i>	MEM

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency	
7.0 Vegetation and Ecosystems (continued)	Loss of ecosystem function, abundance and/or distribution through surface clearing (continued)		7.3	Revegetation will be undertaken with seeds (and/or plants) suitable for the local area and ecosystems, and during the appropriate growing season and conditions to: 1) ensure maximum survival rate; 2) avoid establishment of invasive species; and 3) facilitate the establishment of ecological functions and their associated attributes (e.g. species diversity and productivity).		Mines Act	MEM	
			7.4	Adverse effects will be minimized to terrestrial ecosystems that depend on hydrological connectivity and flow through management by ensuring free passage of water through fill materials (i.e. using clear span bridges, ditches or culverts).		Mines Act	MEM	
			7.5	Monitoring of reclaimed areas will be conducted periodically to ensure they are revegetated. Results will be incorporated into annual reclamation reports.		Construction, Operation, Closure and Reclamation, Post-Closure	Mines Act	MEM
			7.6	Roots and groundcover will be retained where possible to maintain slope stability and prevent surface erosion.		Construction, Operation, Closure and Reclamation	Mines Act	MEM
	Loss and alteration of soil quality and quantity through soil stripping, handling, stockpiling, and dust effects Loss of ecosystem function, abundance and/or distribution through surface clearing	Erosion and Sediment Control Plan	7.7	Erosion potential will be reduced by conducting sensitive work during periods of low runoff to the extent possible.	Construction, Operation, Closure and Reclamation	Mines Act	MEM	
			7.8	The area of landscape disturbance will be minimized and ecosystem-based revegetation and progressive reclamation will occur where practical to minimize erosion potential, introduction of invasive plants, and to facilitate initiation of successional ecological processes.	Construction, Operation, Closure and Reclamation	Mines Act	MEM	
			7.9	The design of the Access Road optimizes the utilization of the existing forestry road to avoid and minimize new disturbance.	Construction	Mines Act	MEM	
			7.10	The clearing of vegetation and soil will be minimized to the extent possible, and avoided where practicable for unique features identified by Qualified Environmental Professionals, including wetlands, exposed bedrock, cliffs etc., which often provide high value habitat to wildlife and may support sensitive vegetation communities and growth forms.		Mines Act	MEM	
	Loss of ecosystem function, abundance and/or distribution through surface clearing Loss of known occurrences of rare plants or lichens and/or habitat through surface clearing.	Vegetation and Ecosystems Management Plan	7.11	Soil handling procedures will be developed and, high quality soils will be identified and stockpiled when required.	Construction, Closure and Reclamation	Mines Act	MEM	
			7.12	Pre-construction surveys will be conducted to delineate relevant boundaries of the BC CDC listed ecosystems and the location of BC CDC listed ecosystems will be communicated to ground crews. "No work" zones and/or buffers will be delineated accordingly, where feasible.	Construction, Operation, Closure and Reclamation	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC	

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
7.0 Vegetation and Ecosystems (continued)	Loss and alteration of soil quality and quantity through soil stripping, handling, stockpiling, and dust effects Alteration of ecosystem function, abundance, and/or distribution through dust effects, fragmentation, edge effects, and invasive plant introduction	Terrain and Soil Management Plan	7.13	Where possible, organic soils will be salvaged and stored separately from mineral soils.	Construction	<i>Mines Act, Weed Control Act</i>	MEM, MFLNRO
	Loss of ecosystem function, abundance and/or distribution through surface clearing Alteration of ecosystem function, abundance, and/or distribution through dust effects, fragmentation, edge effects, and invasive plant introduction	Vegetation and Ecosystems Management Plan	7.14	Riparian areas will be managed per the legislated reserve and/or management zone setbacks and work practices established under the Forest & Range Practices Act, where feasible.	Construction, Operation, Closure and Reclamation	<i>Fisheries Act, Forest and Range Practices Act</i>	DFO, MFLNRO
		Wildlife Management Plan	7.15	Construction activities will be conducted in accordance with the guidelines outlined in the Wildlife Management Plan to ensure minimal risk to old and mature forest wildlife habitat, such as adhering to sensitive periods, specific guidelines, and applicable legislation for wildlife species of concern that use old and mature forest.	Construction	<i>Mines Act</i>	MEM
	Alteration of ecosystem function, abundance, and/or distribution through dust effects, fragmentation, edge effects, and invasive plant introduction	Aquatic Effects Management and Response Plan; Erosion and Sediment Control Plan	7.16	Appropriate setback and buffer distances from surface water courses and riparian features will be implemented and maintained, as per the Health, Safety and Reclamation Code for Mines in BC.	Construction, Closure and Reclamation	<i>Mines Act</i>	MEM
		Terrain and Soil Management Plan; Vegetation and Ecosystems Management Plan	7.17	All vehicles and machinery travel will be restricted to designated road surfaces.	Construction, Operation, Closure and Reclamation	<i>Mines Act</i>	MEM
		Vegetation and Ecosystems Management Plan	7.18	The Vegetation and Ecosystems Management Plan will be implemented and will include the following measures where practicable: Conduct pre-construction invasive plant surveys within the Project footprint to determine the presence/absence of invasive plants; Remove existing invasive plant populations to prevent the spread to adjacent areas; and Establish an early detection, inventory, control, and monitoring and follow up program in accordance with Provincial guidance (i.e., BC MFLNRO) and expert recommendations.	Construction, Operation, Closure and Reclamation	<i>Mines Act, Weed Control Act</i>	MEM, MFLNRO

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
7.0 Vegetation and Ecosystems (continued)	Alteration of ecosystem function, abundance, and/or distribution through dust effects, fragmentation, edge effects, and invasive plant introduction Loss of known occurrences of rare plants or lichens and/or habitat through surface clearing. Alteration of known occurrences of rare plants or lichens or habitat through edge effects, dust deposition and introduction and spread of invasive plants	Vegetation and Ecosystems Management Plan	7.19	Rare plant protection and management measures will include the following, where practicable: Apply adaptive Project design changes that avoid harm to rare plant and lichen populations, where practicable; Avoid surface disturbance in areas with known rare plant and lichen populations; Avoid use of all herbicide sprays within an appropriate distance of rare plant and lichen populations and limit such use to direct application rather than broadcast sprays; Create exclusion zones around rare plant and lichen habitats to minimize effects related to surface clearing, fugitive dust, and invasive plant introduction; Erect temporary fencing or other barriers around the nearby rare plant and lichen populations to avoid further disturbance to the site where avoidance is not feasible and development is permitted within buffer areas around plant populations; Minimize deposition of fugitive dust on rare plant and lichen populations through adherence to the Air Quality and Dust Management Plan (Volume 5, Chapter 29); and Ensure that a qualified environmental monitor, capable of identifying rare plants and lichens is on site (at the clearing location) during vegetation-clearing activities in known rare plant habitat.	Construction, Operation, Closure and Reclamation, Post-Closure	Mines Act	MEM
	Loss of ecosystem function, abundance and/or distribution through surface clearing	Vegetation and Ecosystems Management Plan	7.21	Removal of alpine and parkland, old and mature forest, wetland, floodplain, and BC CDC listed ecosystems will be minimized through Project design and avoided if possible.	Construction	Mines Act, Weed Control Act	MEM, MFLNRO
8.0 Wildlife and Wildlife Habitat	All potential project effects	Wildlife Management Plan	8.1	There will be an approved Wildlife Management Plan which will outline wildlife management and monitoring activities that will be carried out during all phases of the Project, including requirements for direct monitoring of sensitive wildlife species that could be adversely affected by the Project. The Wildlife Management Plan will be updated as needed following changes to current standards as defined by community, scientific, or regulatory bodies.	Construction, Operation, Closure and Reclamation, Post-Closure	Mines Act	MEM
			8.2	The need for any corrective actions to on-site management or for additional control measures in relation to wildlife and wildlife habitat will be determined during the Construction, Operation, and Closure and Reclamation phases. An adaptive management plan specific to the VC or wildlife species of concern will be developed by a Qualified Environmental Professional and implemented. Indications for the need to implement corrective actions or additional control measures to protect wildlife and wildlife habitat may include: Occurrence of negative wildlife interactions that put wildlife or people at risk of death or injury; Monitoring results showing adverse effects to wildlife; Monitoring results showing an adverse effect on sensitive wildlife pathways; and Issues raised by on-site staff, regulators or local communities.	Construction, Operation, Closure and Reclamation	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency	
8.0 Wildlife and Wildlife Habitat (continued)	Changes to habitat distribution and disruption of movement	Wildlife Management Plan	8.3	Infrastructure (including the Access Road) shall be designed to minimize the footprint of disturbance in order to minimize habitat loss for fish and wildlife. Whenever possible Project roads and road embankments will be constructed in a manner to minimize the potential to act as physical barriers or filters to wildlife movement, these include the following: <ul style="list-style-type: none"> Minimizing the number of tributary crossings; Designing crossings perpendicular to tributaries; Ensuring that crossings are sized appropriately to reduce flow restrictions; Avoid crossing higher quality habitat where practicable.	Construction	Fisheries Act, Forest and Range Practices Act, Mines Act	DFO, MFLNRO, MEM	
	Changes to habitat availability (via loss, alteration and sensory disturbance)	Wildlife Management Plan	8.4	Project infrastructure will be designed to avoid, where practicable, identified wildlife sensitive areas. Wildlife sensitive areas will be identified by a Qualified Environmental Professional and provided to Project design engineers.	Construction	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC	
	Changes to habitat availability (via loss, alteration and sensory disturbance) Changes to habitat distribution and disruption of movement	Air Quality and Dust Management Plan; Noise Abatement Plan; Erosion and Sedimentation Control Plan	8.5	The road design has been optimized to minimize the distance travelled, which will reduce noise, dust, and emissions associated with construction and operation.	Construction, Operation, Closure and Reclamation	Mines Act	MEM	
	Human wildlife interactions Mortality risk	Wildlife Management Plan	8.6	Buildings will be designed and maintained to exclude wildlife.	Construction, Operation	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC	
	Human wildlife interactions Mortality risk Disruption to movement	Access Management Plan; Wildlife Management Plan	8.7	Where possible, roads will be designed with clear lines of sight to increase the ability of drivers to see wildlife or other hazards.	Construction, Operation, Closure and Reclamation	Mines Act	MEM	
	Chemical Hazard		Tailings Management Plan; Wildlife Management Plan	8.9	Wildlife will be deterred from the Tailings Management Facility, holding ponds, and onsite settling sumps.	Operation	Mines Act	MEM
				8.10	The Tailings Management Facility will be monitored for use by migratory birds.	Construction, Operation, Closure and Reclamation	Wildlife Act, Migratory Bird Act, Species at Risk Act, Mines Act	MOE, EC, MEM
	Mortality risk	Wildlife Management Plan	8.11	Powerlines will be designed and situated following guidelines for bird protection to minimize strikes and electrocutions. Measures will be taken to discourage birds, particularly raptors, from nesting on power poles.	Construction	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC	
	Mortality risk Disruption to movement	Wildlife Management Plan	8.12	The number of trips for ore and waste rock transport will be minimized along the Haul Road.	Construction, Operation	Mines Act	MEM	

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency	
8.0 Wildlife and Wildlife Habitat (continued)	Mortality Risk Wildlife attractants	Wildlife Management Plan	8.13	An Employee Wildlife Education Program will be developed and delivered in conjunction with Project orientation for all site staff and contractors to ensure awareness of applicable wildlife sensitive issues and mitigation measures. Access Road restrictions and operating protocols (e.g., wildlife right-of-way, speed limits, check-ins, road-wildlife reporting programs) will be covered during the education/orientation.	Construction, Operation, Closure and Reclamation	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC	
	Habitat availability Mortality risk	Wildlife Management Plan	8.14	The mine portals and underground workings will be designed to minimize the potential for bats to gain access. Measures will also be taken to reduce the risk of bats gaining access to underground infrastructure, such as tight mesh and use of artificial light and motion. If bats gain access and use the substructure for maternal roosts or hibernacula, adaptive measures will be incorporated for their protection and continued access, and BC MFLNRO will be contacted and made aware of the use.	Construction, Operation, Closure and Reclamation	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC	
	Direct mortality		Access Management Plan	8.15	IDM will develop, in consultation with the appropriate parties, an Access Management Plan to limit access to the Project area. The Access Management Plan will consider individuals' safety with respect to an active mining project; individuals' Aboriginal and Treaty rights in the Project area; existing tenured or licensed activities in the Project area; and existing recreational values in the Project area.	Construction, Operation, Closure and Reclamation	<i>Wildlife Act, Migratory Bird Act, Species at Risk Act, Firearms Act</i>	MOE, EC, MPSSG
			Explosives Management Plan	8.16	Blasting activities and handling of explosives during road construction will avoid spillage and minimize ammonium blasting residue to lower potential for ammonium contamination.	Construction		
			Wildlife Management Plan	8.17	Fishing and hunting by Project employees, contractors and consultants will be prohibited within Red Mountain Project footprint.	Construction, Operation, Closure and Reclamation		
				8.18	Measures will be implemented to minimize potential project effects in identified high-quality wildlife habitats and movement corridors, including signage along Project roads in high-value wildlife areas or known wildlife travel corridors to warn vehicle operators of the potential to encounter wildlife.			
				8.19	Personal firearms will be prohibited from the Project site.			
				8.20	Wildlife will be given the right-of-way on all roads at all times.			
				8.21	Maximum speed limit of 50 km/h will be established to minimize risk of wildlife collisions. Speed limits may be reduced in areas with increased grades, sharp corners or limited visibility to minimize the risk of wildlife collisions.			
			Wildlife Management Plan (continued)	8.22	Vegetation along Project road sides will be mowed/brushed as necessary to ensure visibility of animals and reduce the risk of wildlife-vehicle collisions.	Construction, Operation, Closure and Reclamation		
				8.23	Where practical, and not a risk to human safety, a Stop Work policy will be implemented when wildlife in the area may be endangered (i.e., risk of physical injury or death) by the work being conducted.			
				8.24	In the event of a bear encounter, bear deterrents will be employed first (e.g., bear spray, air horn); firearms will only be used as a last resort when all other deterrents have failed. IDM will notify the BC Conservation Officer Service if a problem bear is persistently noted at site or after that bear is killed in defense of life or property. The BC Conservation Officer Service will also be consulted regarding proper disposal of the dead animal.			
	8.25	If migration routes for western toad are identified that cross the Access Road or Haul Road, access would be facilitated using drift fences or other means to direct toads through passages such as culverts.						

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
8.0 Wildlife and Wildlife Habitat (continued)	Direct mortality (continued)		8.26	Appropriately trained personnel will monitor and evaluate human-wildlife conflicts carefully using the protocol for human-wildlife interactions to determine whether an animal should be considered a problem animal and appropriate course of action will be implemented.			
	Direct mortality Chemical hazards	Explosives Management Plan	8.27	Explosives will be stored on-site in an approved Explosive Magazine during operations.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
		Fuel Management Plan; Spill Contingency Plan	8.28	Fuel will be stored on-site in a double walled-tank. Appropriate containment measures will be implemented to avoid spills.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
		Hazardous Materials Management Plan	8.29	Hazardous materials (e.g., used batteries, petroleum product containers, grey water and sewage, contaminated soil or snow) will be handled, stored, transported, and disposed in accordance with the Transportation of Dangerous Goods Act and associated Regulations to ensure the safety of workers and the environment.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act (Hazardous Materials Regulation), Transport of Dangerous Goods Act</i>	MOE, TC
		Hazardous Materials Management Plan; Tailings Management Plan	8.30	Cyanide will be used in a manner consistent with the International Cyanide Management Code (International Cyanide Management Institute). Cyanide will only be used to recover gold and the Process Plant will incorporate cyanide detoxification prior to release to the Tailings Management Facility. Cyanide-containing effluent will be analyzed and treated as required prior to discharge to the receiving environment to ensure cyanide concentrations are below the maximum authorized limits.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
	Direct mortality Sensory disturbance	Wildlife Management Plan	8.31	Employees will be educated to assess and adaptively manage driving activities during crepuscular hours (i.e., dawn and dusk), which are periods of high wildlife activity.	Construction, Operation, Closure and Reclamation	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC
	Habitat loss	Vegetation and Ecosystems Management Plan	8.32	The area of landscape disturbance will be minimized and ecosystem-based revegetation and progressive reclamation will occur where practical to minimize erosion potential, introduction of invasive plants, and to facilitate initiation of successional ecological processes.	Construction, Operation, Closure and Reclamation	<i>Mines Act</i>	MEM
			8.33	Revegetation will be undertaken with seeds (and/or plants) suitable for the local area and ecosystems, and during the appropriate growing season and conditions to: 1) ensure maximum survival rate; 2) avoid establishment of invasive species; and 3) facilitate the establishment of ecological functions and their associated attributes (e.g. species diversity and productivity).			
Vegetation and Ecosystems Management Plan (continued)		8.34	Seeding will utilize non-forage vegetation species, native to the region, for roadside sediment and erosion control.	Construction	<i>Mines Act</i>	MEM	

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
8.0 Wildlife and Wildlife Habitat (continued)	Habitat loss (continued)	Vegetation and Ecosystems Management Plan; Wildlife Management Plan	8.35	The clearing of vegetation and soil will be minimized to the extent possible, and avoided where practicable for unique features identified by Qualified Environmental Professionals, including wetlands, exposed bedrock, cliffs etc., which often provide high value habitat to wildlife and may support sensitive vegetation communities and growth forms.			
	Habitat loss Sensory disturbance	Vegetation and Ecosystems Management Plan; Wildlife Management Plan	8.36	Project activities will be restricted to the defined Project footprint. Construction and Operation-phase activities, including vehicle use, will be restricted to areas that are surveyed, approved, marked, and flagged. Due care will be taken by all personnel to avoid excessive and unnecessary disturbance to existing riparian and aquatic areas, vegetation, and wildlife habitat within the Project footprint.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
	Habitat loss Wildlife attractants Sensory disruption	Wildlife Management Plan	8.37	A facility-specific monitoring program will be included with the Wildlife Management Plan (Volume 5, Chapter 29) to assess the effectiveness of mitigation measures for minimizing disturbance and effects of the Project on wildlife. This plan will include: footprint monitoring to monitor habitat loss; human activity monitoring of the Access Road and Haul Road; nest avoidance monitoring to identify active bird nests at risk of disturbance from vegetation clearing; pit and quarry monitoring to identify active raptor nests at risk of disturbance from blasting activities; waste management monitoring to ensure that wastes are being properly disposed and that wildlife do not have access to these wastes; fence and skirting monitoring to ensure that fences are operational and effective at excluding wildlife without causing them harm; wildlife-vehicle interaction monitoring to document wildlife-vehicle collisions, identify sections of the Access Road and Haul Road that might be at risk of collisions and developing mitigation measures to reduce risks to wildlife; and incidental wildlife reporting to record general wildlife activity in the Project area and identify unexpected conflicts or potential conflicts posed by the Project facilities to wildlife and adaptively manage where possible.	Construction, Operation, Closure and Reclamation	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC
	Habitat loss Indirect mortality Sensory disturbance	Wildlife Management Plan	8.38	A focal species monitoring program will be included with the Wildlife Management Plan (Volume 5, Chapter 29) to monitor Project-related effects on specific wildlife species including: Monitoring raptor nests in the LSA for occupancy and productivity; A monitoring program for mountain goat; and IDM will invite NLG to participate in the development of mountain goat monitoring.	Construction, Operation, Closure and Reclamation	Wildlife Act, Migratory Bird Act, Species at Risk Act	MOE, EC
	Habitat loss Disruption to movement	Wildlife Management Plan	8.39	Reclamation activities will be undertaken and designed to remove barriers and facilitate unobstructed wildlife movement following mine closure.	Closures and Reclamation, Post-Closure	Mines Act	MEM
	Wildlife attractants	Waste Management Plan	8.40	A policy of no littering will be developed and continue throughout the life of the Project, and will be disseminated to all Project and contractor employees and consultants during employee orientation and enforced.	Construction, Operation, Closure and Reclamation	Wildlife Act	MOE

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
8.0 Wildlife and Wildlife Habitat (continued)	Wildlife attractants (continued)	Waste Management Plan (continued)	8.41	General waste will be separated at the source and will be handled, stored, and transported offsite for disposal at an approved facility.	Construction, Operation, Closure and Reclamation	Wildlife Act	MOE
			8.42	The use of wildlife-attracting dust suppressants will be avoided if possible.			
			8.43	A policy of no feeding and no intentional attraction of wildlife will be developed, disseminated to all Project and contractor employees during employee orientation and enforced.			
			8.44	Creation of pools attractive to amphibians along roads and within facility areas will be avoided.			
			8.45	Alternative measures will be used for deicing Project roads (e.g., gravel) or dust suppression (e.g., water) whenever possible, as salt is known to attract foraging wildlife. The use of salt in traction grit for winter road management will be avoided where practicable.			
			8.46	A waste and wildlife attractant management protocol will be developed as part of the Wildlife Management Plan (Volume 5, Chapter 29) to ensure wildlife do not have access to temporary on-site waste storage areas, contaminated areas, and attractants.			
			8.47	Deterrents (e.g., noise makers, wire barricades) will be used as necessary to discourage wildlife from entering Project infrastructure for refuge, shelter, nesting, or roosting opportunities and potentially becoming entrapped.			
	Wildlife Management Plan; Waste Management Plan	8.48	Bear-proof receptacles will be used for all waste and wildlife attractants, where possible, to ensure bears do not have access to temporary on-site waste storage areas, contaminated areas, and attractants.	Construction, Operation, Closure and Reclamation			
		8.49	Should a carcass be found on the roadside, it will be reported and removed promptly to discourage scavenging wildlife along Project roads. The BC Conservation Officer Service will be notified and consulted regarding proper disposal of dead animals.				
	Wildlife attractant Sensory disturbance	Wildlife Management Plan	8.50	The Wildlife Management Plan (Volume 5, Chapter 29) will include bear management and mitigations measures, including: road access management; garbage and attractant management; facility management; personnel bear aware training; problem bear management; and monitoring and adaptive management.	Construction, Operation, Closure and Reclamation	Wildlife Act	MOE
Sensory disturbance	Wildlife Management Plan	8.51	Directed / focused lighting will be used where possible rather than broad area lighting to minimize sensory disturbance to wildlife. Timer systems will be considered, where appropriate, to limit light disturbance and reduce power consumption. Light in non-essential areas will only be used when necessary without compromising worker safety. Types of illumination should be light-emitting diode (LED) if possible since they produce little heat and have more focused light spectrums that are less appealing to insects and thus do not attract bats.	Construction, Operation, Closure and Reclamation	Wildlife Act	MOE	
		8.52	Harassing, approaching, or otherwise interfering with wildlife will be prohibited, such as chasing wildlife with a motorized vehicle.		Wildlife Act	MOE	

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
8.0 Wildlife and Wildlife Habitat (continued)	Sensory disturbance (continued)	Wildlife Management Plan (continued)	8.53	If an occupied bear winter den is found, an appropriate no-disturbance buffer (e.g., minimum 60 m) will be implemented to reasonably avoid disturbing the bear.	Construction	Wildlife Act	MOE
			8.54	A species-specific buffer will be employed around all probable or actual nest sites that are detected during pre-clearing nest surveys or on infrastructure. Species specific buffers will be selected using guidance from General Nesting Periods of Migratory Birds in Canada (ECCC). These nests will be monitored until the young have fledged or the nest is abandoned. The minimum buffer distance of 30 m will be utilized wherever practicable as determined by a Qualified Environmental Professional, assuming Project operability.	Construction, Operation, Closure and Reclamation	Wildlife Act	MOE
			8.55	In the event that goats approach within 500 m of an active work site, the Environmental Superintendent will be notified and will assess the behaviour of the animal(s) for signs of stress or disturbance. Additional mitigation measures will be employed depending on the response of the animal(s) and may include limiting activities until the animal(s) have moved beyond the site.		Wildlife Act	MOE
			8.56	During operation, impulse events, such as blasting, will be limited to certain times of the day. Instantaneous charge per delay will be minimized to suit blast.	Operation	Wildlife Act	MOE
		Noise Abatement Plan	8.57	There will be an approved Noise Abatement Plan that will be carried out during all phases of the Project. The Plan will include mitigation measures to reduce or eliminate the potential effects of noise on sensitive wildlife receptors. In addition, the program will involve monitoring noise levels as required.	Construction, Operation, Closure and Reclamation	Wildlife Act	MOE
		Tailings Management Plan	8.58	Tailings disposal methods have been designed to reduce beach/dust sources and generation. The operational supernatant pond volume in the Tailings Management Facility will be managed to ensure that the beaches are saturated, which will reduce the potential for dust generation.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
		Air Quality and Dust Management Plan	8.59	Equipment will be fitted with appropriate mufflers and silencers that meet manufacturers' recommendations for optimal attenuation.	Construction, Operation, Closure and Reclamation	Mines Act	MEM
	Sensory disturbance Mortality risk	Wildlife Management Plan	8.60	Above ground blasting will be halted when sensitive receptors, such as mountain goat are observed from the ground within 1,000 m of the blast area. Mountain goat presence at suitable habitat will be identified prior to blasting by ground-based surveys during November 1 to July 15.	Construction, Operation	Mines Act, Wildlife Act	MEM, MOE
	Sensory disturbance Chemical hazards	Air Quality and Dust Management Plan	8.61	Equipment will be turned off when not in use, where practical, to avoid unnecessary idling of motors (e.g. institute a no-idling policy for Project vehicles).	Construction, Operation, Closure and Reclamation	Mines Act	MEM
			8.62	All mobile and stationary engines will have regular servicing to maintain efficiency.		Mines Act	MEM
			8.63	The ventilation systems for the underground mine will be designed to dilute and remove dust, diesel emissions, and blasting fumes, and will maintain compliance with BC mine regulations.		Mines Act	MEM
	Sensory disturbance Habitat alteration	Wildlife Management Plan	8.64	Prior to site preparation or construction works, Project footprint boundaries and known wildlife habitat features or sensitive areas will be clearly marked on site plans and in the field by a Qualified Environmental Professional and will include appropriate no-disturbance buffers.	Construction	Mines Act, Wildlife Act	MEM, MOE

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
8.0 Wildlife and Wildlife Habitat (continued)	Sensory disturbance indirect mortality	Wildlife Management Plan	8.65	Vegetation clearing and construction activities will be timed to avoid sensitive habitats during sensitive periods for wildlife VCs (e.g. mountain goat, grizzly bear, marmot, and migratory birds) whenever possible. If construction cannot be scheduled outside of sensitive periods for wildlife VCs, a Qualified Environmental Professional will conduct species-specific pre-clearing surveys within suitable habitat, and site specific procedures will be developed.	Construction	<i>Mines Act, Wildlife Act</i>	MEM, MOE
	Sensory disturbance Direct mortality	Wildlife Management Plan	8.66	If blasting is required within a no-disturbance buffer around a sensitive wildlife receptor, a site-specific mitigation plan will be developed in consultation with a Qualified Environmental Professional and appropriate authorities.	Construction, Operation, Closure and Reclamation	<i>Mines Act, Wildlife Act</i>	MEM, MOE
	Disruption to movement	Wildlife Management Plan	8.67	Snow bank height along Project roads will be managed and will include periodic breaks to minimize the potential for Project roads to act as physical barriers or filters to wildlife movement. Creating escape pathways (i.e. gaps) in snowbanks will allow wildlife (e.g. moose) to exit road areas.	Construction, Operation	<i>Mines Act, Wildlife Act</i>	MEM, MOE
	Disruption of movement Habitat alteration	Wildlife Management Plan	8.68	The project has been designed to limit new access to alpine areas within known goat ranges.	Construction	<i>Mines Act, Wildlife Act</i>	MEM, MOE
	Chemical hazards	Site Water Management Plan; Tailings Management Plan	8.71	Contact water will be intercepted and routed to on-site settling sumps, holding ponds, or the Tailings Management Facility and will be analyzed and treated as required to meet regulatory requirements prior to discharge to the receiving environment. Sources of contact water include mining areas, mine wastes, tailings, and surface water/storm water flow from the individual Project areas.	Construction, Operation, Closure and Reclamation	<i>Mines Act</i>	MEM
	Sensory disturbance	Wildlife Management Plan	8.73	No-disturbance buffers will be established around identified wildlife habitat features (e.g., mineral licks, dens, and bat roosts) during sensitive periods, as per the setback distances identified the Wildlife Management Plan or by a Qualified Environmental Professional.	Construction	<i>Mines Act, Wildlife Act</i>	MEM, MOE
9.0 Aquatic Resources, Fish and Fish Habitat	Changes in surface water quality	Tailings Management Plan	8.74	The Tailings Management Facility has been designed with an impermeable liner to limit seepage to the receiving environment.	Construction	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Material Handling & ML.ARD Management Plan	8.75	The use of PAG material for construction will be minimized where practicable. For roads, pads and rock cuts, the following will be conducted to the extent possible: Minimize cut and fill in areas with ML/ARD potential. Free passage of water through fill materials (i.e. clear span bridges, ditches or culverts) and not through rock drains. For pads, drainage will be collected using water diversions.	Construction, Operation, Closure and Reclamation		
	Material Handling & ML.ARD Management Plan (continued)	9.1	ML/ARD will be managed by submerging tailings in the Tailings Management Facility, and by flooding the underground workings at closure	Construction, Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
	Hazardous Materials Management Plan	9.2	As part of ore processing, cyanide destruction will occur in order to keep potentially harmful levels of cyanide from being discharged to the receiving environment.	Construction, Operation			
	Tailings Management Plan; Site Water Management Plan	9.3	Excess water from the underground workings and the Tailings Management Facility to be discharged to the receiving environment will be monitored. Treatment will be undertaken if necessary to ensure water quality meets permitted requirements.	Operation			

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency	
9.0 Aquatic Resources, Fish and Fish Habitat <i>(continued)</i>	Changes in surface water quality <i>(continued)</i>	Site Water Management Plan; Tailings Management Plan	9.4	Contact water will be intercepted and routed to on-site settling sumps, holding ponds, or the Tailings Management Facility and will be analyzed and treated as required to meet regulatory requirements prior to discharge to the receiving environment. Sources of contact water include mining areas, mine wastes, tailings, and surface water/storm water flow from the individual Project areas.	Construction, Operation, Closure and Reclamation			
	Changes in water quality	Site Water Management Plan	9.5	Oily water treatment separators at equipment maintenance facilities will be used to minimize water and surface hydrocarbon contaminants.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
		Site Water Management Plan; Tailings Management Plan	9.6	Clean, non-contact catchment water will be diverted away from the Tailings Management Facility and other project infrastructure to maintain water quality and natural drainage networks as much as possible.	Construction, Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
		Spill Contingency Plan		9.7	All mobile equipment will be inspected as required (minimum once per shift) by the operator for potential leaks.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
				9.8	Any machinery identified as having the potential to result in a fluid release or leak will be repaired prior to use.			
				9.9	Refueling and maintenance activities will not occur within 15 m of a watercourse except where required due to equipment breakdown or approved activities near water.			
				9.10	Appropriate secondary containment systems will be used for petroleum product storage to prevent spills and releases to water. This includes secondary containment required for tanks carrying diesel fuel.			
				9.11	Refueling will occur at a refueling point with drainage capture/collection installed, in the event that refueling occurs elsewhere, drip trays will be used under vehicles and equipment.			
				9.12	The fuel tanks, hazardous materials storage area, and the explosives magazine(s) will be designed and constructed to minimize leaks and spills reaching freshwater environment.			
				9.13	A spill response procedure will be developed as part of the spill contingency plan including both internal (IDM) and external (regulatory agencies) reporting requirements.			
		Tailings Management Plan	9.14	Tailings disposal methods have been designed to reduce beach/dust sources and generation. The operational supernatant pond volume in the Tailings Management Facility will be managed to ensure that the beaches are saturated, which will reduce the potential for dust generation.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
		Hazardous Materials Management Plan; Tailings Management Plan	9.15	Cyanide will be used in a manner consistent with the International Cyanide Management Code (International Cyanide Management Institute). Cyanide will only be used to recover gold and the Process Plant will incorporate cyanide detoxification prior to release to the Tailings Management Facility. Cyanide-containing effluent will be analyzed and treated as required prior to discharge to the receiving environment to ensure cyanide concentrations are below the maximum authorized limits as outlined in the Metal Mining Effluent Regulations under the federal Fisheries Act.	Construction, Operation, Closure and Reclamation			

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
9.0 Aquatic Resources, Fish and Fish Habitat (continued)	Changes in water quality (continued)	Wildlife Management Plan	9.16	Alternative measures will be used for deicing Project roads (e.g., gravel) or dust suppression (e.g., water) whenever possible, as salt is known to attract foraging wildlife. The use of salt in traction grit for winter road management will be avoided where practicable.	Construction, Operation, Closure and Reclamation		
	Changes in stream flow	Site Water Management Plan	9.17	The Process Plant has been designed to use reclaim water from the Tailings Management Facility, thereby reducing the amount of water required from local natural surface waters.	Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			9.18	Water will be recycled / reused where possible.	Construction, Operation		
			9.19	Discharge from the TMF to Bitter Creek will be staged to the extent possible to match the receiving environment hydrograph.	Construction, Operation, Closure and Reclamation		
		Aquatic Effects Management and Response Plan	9.20	Water withdrawal will remain within limits specified in applicable authorizations and permits to avoid adverse impacts to streamflows, fish and fish habitat.	Construction, Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
	Direct mortality	Aquatic Effects Management and Response Plan	9.21	Where pumps are used in fish-bearing watercourses or where fish salvage has not occurred, the intakes will be screened in accordance with the Fresh Water Intake End of Pipe Screening Guideline (DFO), e.g., screens with openings no larger than 2.54 mm. Outlets will have a diffuser or be located in an area not subject to erosion from outflows.	Construction	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
	Direct mortality Habitat loss	Wildlife Management Plan	9.22	Infrastructure (including the Access Road) shall be designed to minimize the footprint of disturbance in order to minimize habitat loss for fish and wildlife. Whenever possible Project roads and road embankments will be constructed in a manner to minimize the potential to act as physical barriers or filters to wildlife movement, these include the following: Minimizing the number of tributary crossings; Designing crossings perpendicular to tributaries to limit disturbance to riparian vegetation; Ensuring that crossings are sized and maintained appropriately to reduce flow restrictions; Avoid crossing higher quality habitat where practicable.	Construction	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
	Habitat loss	Aquatic Effects Management and Response Plan	9.23	Efforts shall be made to minimize the duration of any instream works and minimize disturbance of riparian vegetation at stream crossings.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Aquatic Effects Management and Response Plan (continued)	9.24	All temporary works, silt curtains, construction material or debris, etc. will be completely removed from the waterway when work is completed.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Aquatic Effects Management and Response Plan; Erosion and	9.25	Where practicable, machinery fording a watercourse to bring equipment required for construction to the opposite side will be limited to a one-time event (over and back) and shall occur only if an existing crossing at a nearby location is not available or practical to use.	Construction	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency	
9.0 Aquatic Resources, Fish and Fish Habitat (continued)	Habitat loss(continued)		9.26	Vehicular access across a watercourse or waterbody will be by road or bridge, or other acceptable method according to Fisheries and Oceans Canada and provincial guidance and best practices for instream works.		<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
		Vegetation and Ecosystems Management Plan; Wildlife Management Plan	9.27	Project activities will be restricted to the defined Project footprint. Construction and Operation-phase activities, including vehicle use, will be restricted to areas that are surveyed, approved, marked, and flagged. Due care will be taken by all personnel to avoid excessive and unnecessary disturbance to existing riparian and aquatic areas, vegetation, and wildlife habitat within the Project footprint.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
		Vegetation and Ecosystems Management Plan	9.28	Monitoring of reclaimed riparian areas will be conducted periodically to ensure they are revegetated.	Construction, Operation, Closure and Reclamation, Post-Closure			
	Habitat loss Changes in stream flow	Aquatic Effects Management and Response Plan	9.29	Instream work will be conducted during periods of lowest risk to fish and wildlife species and habitat where practicable, as per provincial guidance of the Regional Terms, Conditions, Timing Windows (BC MOE); with a Qualified Environmental Professional present to monitor instream works in fish bearing reaches.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
			9.30	Falling of trees will be conducted away from watercourses.	Construction			<i>Environmental Management Act, Fisheries Act (MMER)</i>
	Habitat loss Changes in sediment quality	Material Handling & MLARD Management Plan	9.31	Excavations will follow the requirements outlined in the Health, Safety and Reclamation Code for Mines in BC, specifically for locating utilities, cut slope angles, shoring (if required), access procedures, barriers and stockpile setbacks.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC	
			Erosion and Sediment Control Plan	9.32	Temporary water management structures, which may include ditches, ponds and sumps, will be developed to manage surface water during construction, prior to the development of permanent water management structures.			Construction
				9.33	Regular inspections will be conducted to ensure drainage, erosion, and sediment control measures are effective and functioning properly; all necessary repairs and adjustments will be conducted in a timely manner.			Construction, Operation, Closure and Reclamation, Post-Closure
				9.34	Exposed landscape surfaces will be protected, where practicable, by the installation of covering material like riprap, aggregate, or rolled erosion control products.			

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
9.0 Aquatic Resources, Fish and Fish Habitat <i>(continued)</i>	Changes in sediment quality	Erosion and Sediment Control Plan	9.35	Sediment loading in runoff will be minimized by the application of measures to intercept total suspended solids before it reaches the freshwater environment. Sediment control measures may include: preservation of riparian zones to trap sediment and to reduce flow velocities; installation of synthetic permeable barriers, fibre rolls, and/or silt fences as required; installation of check dams, gabions, and sediment basins to reduce flow velocities and encourage sediment deposition; and locating stockpiles well away from watercourses.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			9.36	Erosion potential will be reduced by conducting sensitive work during periods of low runoff to the extent possible.			
	Changes in sediment quality Changes in surface water quality	Air Quality and Dust Management Plan; Erosion and Sedimentation Control Plan	9.37	The road design has been optimized to minimize the distance travelled, which will reduce dust and emissions associated with construction and operation.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
			9.38	Erosion potential will be reduced by conducting sensitive work during periods of low runoff as much as possible.			
			9.39	Infrastructure will be located, whenever feasible, on competent bedrock or appropriate base material that will limit permeability and transport of potentially poor quality water into freshwater.			
			9.40	Sediment and sediment laden water near waters frequented by fish will be managed according to the Erosion and Sediment Control Plan.			
	Increased fishing pressure	Access Management Plan	9.41	IDM will develop, in consultation with the appropriate parties, an Access Management Plan to limit access to the Project area. The Access Management Plan will consider individuals' safety with respect to an active mining project; individuals' Aboriginal and Treaty rights in the Project area; existing tenured or licensed activities in the Project area; and existing recreational values in the Project area.	Construction, Operation, Closure and Reclamation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
		Wildlife Management Plan	9.42	Fishing and hunting by Project employees, contractors and consultants will be prohibited within Red Mountain Project footprint.			
	Effects of blasting Direct mortality	Aquatic Effects Management and Response Plan	9.43	Measures will be implemented to prevent or avoid the destruction of fish, or any potentially harmful effects to fish habitat, when using explosives in or around water frequented by fish.	Construction, Operation	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
	Effects of blasting Changes in water quality	Explosives Management Plan	9.44	Blasting activities and handling of explosives during road construction will avoid spillage and minimize ammonium blasting residue to lower potential for ammonium contamination.	Construction	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
9.0 Aquatic Resources, Fish and Fish Habitat <i>(continued)</i>	All potential effects associated with fish and fish habitat	Aquatic Effects Management and Response Plan	9.45	An Aquatic Effects Management and Response Plan (AEMRP) will be in place that outlines the aquatic effects management and response to be carried out during all phases of the Project.	Construction, Operation, Closure and Reclamation, Post-Closure	<i>Environmental Management Act, Fisheries Act (MMER)</i>	MOE, EC
SOCIAL							
10.0 Socio-Economics	Increased access to Bitter Creek Valley	Access Management Plan	10.1	IDM will develop, in consultation with the appropriate parties, an Access Management Plan to limit access to the Project area. The Access Management Plan will consider individuals' safety with respect to an active mining project; individuals' Aboriginal and Treaty rights in the Project area; existing tenured or licensed activities in the Project area; and existing recreational values in the Project area.	Construction, Operation, Closure and Reclamation	None	NA
	Effects on local and regional labour markets	Social and Economic Management Plan	10.2	Best management practices will be employed to reduce potential adverse effects of the Project, while maximizing potential benefits to the region. Specific provisions relate to employment, economic development, business opportunities, education and training, and health and community well-being.	Construction, Operation, Closure and Reclamation	None	NA
		Local Procurement Plan; Skills, Training, and Employment Plan; Social and Economic Management Plan	10.3	A workforce transition plan will be developed and implemented.	Construction, Operation	None	NA
	Project induced in-migration to the Nass Valley	Social and Economic Management Plan	10.4	The potential contracting opportunities will be maximized for Nisga'a citizens and communities within the RSA for revenue to the local economy. This will include preference for local businesses when designing and developing Project related contracting opportunities.	Construction, Operation, Closure and Reclamation	None	NA
	Economic benefits	Local Procurement Plan; Skills, Training, and Employment Plan; Social and Economic Management Plan	10.5	Preference will be placed on hiring Nisga'a citizens, as well as citizens of communities within the RSA for Project-related employment. Workers will need to meet basic employment requirements, which will vary depending on the position. Following providing opportunities to workers from within the Project-related employment RSA, priority will be placed on hiring workers from elsewhere in BC, followed by the rest of Canada. Prospective candidates will be informed in advance regarding the necessary requirements and qualifications needed for the job, service, or function. A work program will be developed and implemented for increasing Nisga'a employee retention. Specific activities include: 1) provide a worker schedule that enables individuals to continue to participate in the subsistence economy through land use and harvesting activities; 2) preferential hiring of Nisga'a citizens to maximize the potential gain in mining and other work experience, which in turn promotes the development of human capital in the region; and 3) timely communication of all employment opportunities and related skills requirements.	Construction, Operation, Closure and Reclamation	None	NA
		Local Procurement Plan; Skills, Training, and Employment Plan; Social and Economic Management Plan	10.6	Pre-recruitment information sessions will be conducted with Nisga'a Employment Skills and Training and relevant and interested organizations and agencies, especially in the District of Stewart.	Construction, Operation	None	NA

VC	Project Related Effect	Management Plan	Proposed Mitigation Measure		Timing	Legal Requirement? ¹	Responsible Agency
10.0 Socio-Economics <i>(continued)</i>	Pressure on health and medical services	Health and Social Services Plan	10.7	Engagement with health and social services providers, especially Northern Health Authority, will be conducted to develop plans and measures to manage issues related to potential pressure on health and social services.	Construction, Operation	None	NA
	All Social and Economic VCs	Adaptive Management Plan; Social and Economic Management Plan	10.8	Overall, an approach of adaptive management will be employed to ensure the objectives of the Social and Economic Management Plan (Volume 5, Chapter 29) are met and, in turn, meet the needs of employees, local communities, and the Project with respect to economic development, employment, business opportunities, education and training, and health and community well-being.	Construction, Operation, Closure and Reclamation	None	NA
11.0 Cultural and Heritage Resources	Potential disturbance of unidentified archaeological, paleontological, cultural, and heritage resources	Cultural and Heritage Resources Protection Plan	11.1	IDM will implement a cultural and heritage resources chance find procedure, which outlines the actions and communications to be undertaken should previously unknown archaeological, paleontological, heritage, and cultural resources be discovered.	Construction, Operation, Closure and Reclamation	<i>Heritage Conservation Act</i>	MFLNRO
	Potential change to access	Access Management Plan	11.2	IDM will develop, in consultation with the appropriate parties, an Access Management Plan to limit access to the Project area. The Access Management Plan will consider individuals' safety with respect to an active mining project; individuals' Aboriginal and Treaty rights in the Project area; existing tenured or licensed activities in the Project area; and existing recreational values in the Project area.	Construction, Operation, Closure and Reclamation	<i>Heritage Conservation Act</i>	MFLNRO

31.6 References

- British Columbia Ministry of Environment (BC MOE). 2016. Best Management Practices for Bats in British Columbia. Available at: <http://a100.gov.bc.ca/pub/eirs/viewDocumentDetail.do?fromStatic=true&repository=BDP&documentId=12460>
- British Columbia Ministry of Environment (BC MOE). 2017. Regional Terms, Conditions, Timing Windows. Available at: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/working-around-water/regional-terms-conditions-timing-windows>
- British Columbia Ministry of Forests, Lands, and Natural Resources (BC MFLNRO). 2017. Invasive Plant Program Publications and Downloads. Available at: <https://www.for.gov.bc.ca/hra/plants/publications.htm>
- British Columbia Ministry of Forests, Lands and Natural Resource Operations (BC MFLRNO), British Columbia Ministry of Environment (BC MOE), and Fisheries and Oceans Canada (DFO). 2012. Fish-stream Crossing Guidebook. Rev. ed. For. Prac. Invest. Br. Victoria, B.C. Available at: <https://www.for.gov.bc.ca/hfp/fish/Fish-Stream%20Crossing%20Print.pdf>
- BC Ministry of Energy and Mines (MEM). 2017. Health, Safety and Reclamation Code for Mines in British Columbia. Victoria, BC. http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/health_safety_and_reclamation_code_2017.pdf
- Department of Fisheries and Oceans (DFO). 1995. Fresh Water Intake End of Pipe Screening Guideline. Published by Communications Directorate, Minister of Supply and Services Canada. ISBN 0-662-23168-6 Catalogue No. Fs 23-270 / 1995E. Available at: <http://www.dfo-mpo.gc.ca/Library/223669.pdf>
- Department of Fisheries and Oceans (DFO). 2016. Projects Near Water. Website last updated on November 18, 2016. Available at: <http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>
- Environment and Climate Change Canada (ECCC). 2017. General nesting periods of migratory birds in Canada. <http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4f39a78f-1>.
- International Cyanide Management Institute. 2015. International Cyanide Management Code. Available at: <http://www.cyanidecode.org/about-cyanide-code/cyanide-code>
- Wright, D.G. and Hopky, G.E. 1998. Fisheries and Oceans Canada's Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters. Canadian Technical Report of Fisheries and Aquatic Sciences 2107. Available at: <http://www.dfo-mpo.gc.ca/Library/232046.pdf>